

» SAMSUNG » HTC » NEXUS **FREE** 60 MINUTES OF VIDEO

» 100% unofficial

www.littlegreenrobot.co.uk

Android magazine™

» App reviews » Tips & advice
» Hardware tested » Hacking

MARSHMALLOW ULTIMATE GUIDE

ANDROID 6.0

» When can you update? » Master every new feature » Why it's better than Lollipop

**THE
TOP 10
PHONES
YOU'VE NEVER
HEARD OF**

**BEST WAY
TO BUY**

What is officially the cheapest way to buy an Android device?

**LOCKSCREEN
UPGRADES**

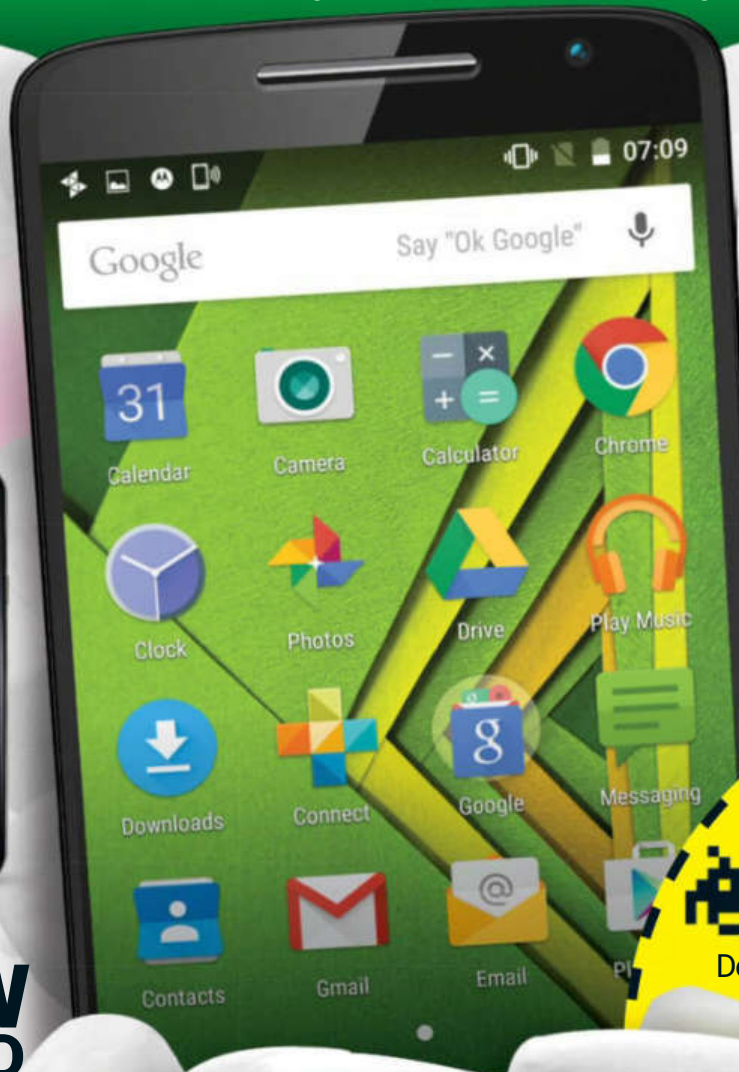
The best apps for making your lockscreen more useful

**HackerZone
BUILD YOUR
OWN GAME**

Design and code games with Corona

**THE BIG NEW
RELEASES TESTED**

OnePlus 2 » Moto X Play » Sony Xperia M4 Aqua
LG G4c » Wileyfox Swift » Vodafone Smart ultra 6



DigitalEdition
GreatDigitalMags.com
ISSUE 056



made for music

We are a family-owned British company, passionate about sound and design. With our heritage in world-class high-fidelity speakers, today we've applied our skills to create a new generation of perfectly formed music systems with wide ranging appeal. Whether you're looking for beautiful design or perfect sound, we think you'll be impressed by what we have to offer. Most importantly, all our products are engineered to last, with qualities you will cherish and enjoy for years to come.





Is it possible
you've never
heard of your
next phone?
See page 20

Welcome

Given the frailties of Android Lollipop, the wait for Google to unleash its new operating system has seemed to go on forever. Thankfully we've been hands on with the latest developer builds to give you the ultimate guide to version 6.0, Android Marshmallow. Inside this month's cover feature we'll let you know when you can update your device, show you how to master every new feature and, most importantly, reveal why Marshmallow is better than Lollipop. All the gooey fun starts over on page 12.

As well as being treated to a new operating system, this month saw a host of new smartphones being announced. We were at the massive tech expo IFA in Berlin to get a close-up preview of just how much there is to be excited about. Our 'Top 10 phones you've never heard of' feature on page 20 looks at some of those

new, exciting devices and explains why they could even be your next purchase.

Our review section is jam-packed once again with definitive verdicts on all the latest releases. Can OnePlus strike gold again, is the Moto X Play the perfect phone for gamers and is Vodafone's new budget device amazing value? All the big questions are answered on page 62.

Throw in all the usual informative tutorials and a Hacker Zone that shows you how to build a game from scratch, and you've got another great issue of Android Magazine. Enjoy!

Philip Morris

Philip Morris
Deputy Editor



MEET THE TEAM

What is your favourite Marshmallow feature?



Philip Morris
Deputy Editor

Android Pay is a welcome addition. Contactless payments are already very successful, so it's about time we had the option.



Jamie Frier
Staff Writer

It will be a relief when links automatically load up in the most appropriate app, rather than asking me to make the decision.



Adele Jordan
Production Editor

The new Doze feature has got to be my big highlight. It uses motion detection to put itself to sleep and save on battery power.



Adam Markiewicz
Senior Designer

Native support for fingerprint recognition is going to be great when third-party developers start rolling out updates.

GET IN TOUCH

What do you think?
Let us know!

»email

qa@littlegreenrobot.co.uk

Drop us an email and let us know what you'd like to see in the mag

»facebook



[/littlegreenrobot](https://www.facebook.com/littlegreenrobot)

Like us on Facebook to send us your comments

»twitter



[@grobot](https://twitter.com/grobot)

Follow us on Twitter and send us your thoughts



FREE – exclusive with this issue

» Unboxing videos

» Video tutorials

» Wallpapers

Watch us get our hands on the Wileyfox Swift and Moto X Play

Expert video guides to follow along with this issue's tutorials

Stunning backgrounds for phones, tablets and Chromebooks

www.filesilo.co.uk/android

CONTENTS

30 Exclusive subscription offer **61** Special offer for international readers

Launcher



Previews, news
and speculation
from the world
of Android



06 Is this the end of Google apps?

Why your new phone is set
to have less bloatware



08 10 things you need to know about Google's Deep Dream

Google's artificial intelligence
software under the spotlight



10 Mobile breathalyser

Discover if you're safe enough
to drive with the Floome

MARSHMALLOW ULTIMATE GUIDE

12 Everything you need to know about
Android 6.0's long-awaited arrival



Top 10 phones you've never heard of

20 Why a phone you've never
heard of could be your next

Cheapest way to buy



26 What is officially the
cheapest way to buy?

Hacker Zone This month's top mods and tweaks

48 Build your first Android game with Corona SDK
Learn how to design and code a ghostly Android game

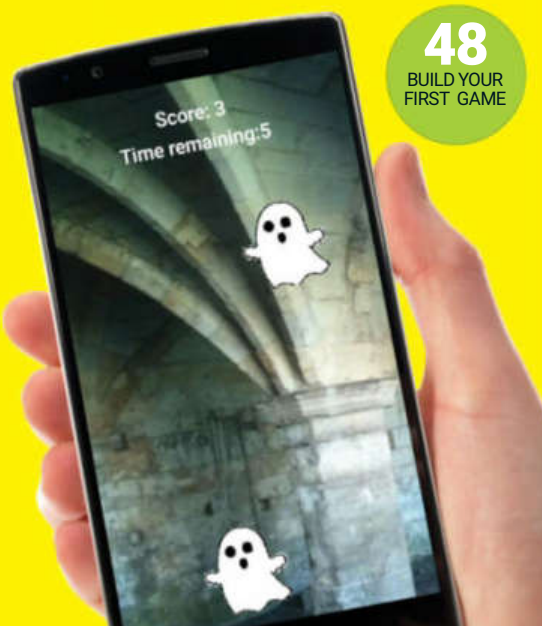
54 Hacking Tips & Tricks
Essential hacking advice, including how you can get more from the Xposed module repository

56 How to lock your bootloader
Discover how to revert your phone to having a locked bootloader after rooting your device

58 Change your device's screen resolution
Find the best screen resolution, density and overscan for your Android device

59 Optimise battery with CPU Spy Reloaded
Use this app on your rooted device to get more control over the energy your CPU is using

60 Lock and protect apps with ProtectedApps
Use this Xposed module to add an extra layer of security to sensitive apps



48
BUILD YOUR FIRST GAME

Visit the **Android Magazine** online shop at **imagineshop.co.uk** for back issues and books

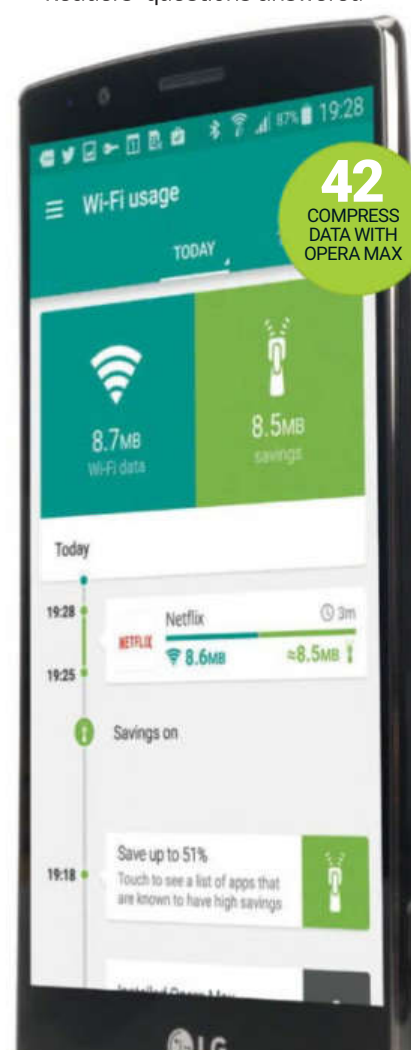
Tutorials Get more from your Android device

32 Masterclass: Lockscreen upgrades
The best apps for making your lockscreen more useful

36 Tutorials

- 36** Identify your songs with Songie
- 37** Never miss an alert with Glimpse Notifications
- 38** How to sync Android with Windows 10
- 40** Stay connected with interactive watch faces
- 42** Compress data in Netflix with Opera Max
- 43** Improved Trusted face security
- 44** Transfer pictures from Flickr to Google Photos

92 Droid Support
Readers' questions answered



42
COMPRESS DATA WITH OPERA MAX

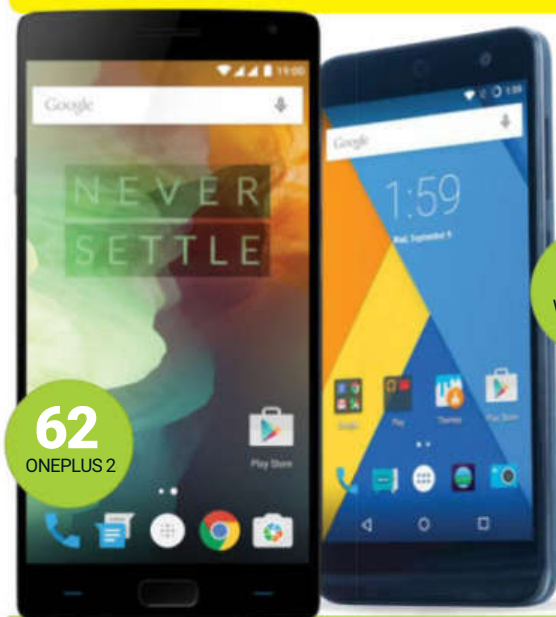
Reviews Latest tech tested

72
WILEYFOX SWIFT

- 62** OnePlus 2
- 66** Moto X Play
- 69** Sony Xperia M4 Aqua
- 70** LG G4c
- 72** Wileyfox Swift
- 74** Kindle Paperwhite 2015
- 75** Vodafone Smart ultra 6

76 Accessories
Divoom Voombox-party speaker, STK Intense headphones

88 Buyer's Guide



62
ONEPLUS 2

Apps Your complete guide to Google Play

78 App reviews
The latest and greatest apps tested in full

83 Head-to-head
SoundHound vs Sound Search

84 Game reviews
The best new games reviewed



84
FALLOUT SHELTER

30+ APPS

Check our website daily for even more news

» www.littlegreenrobot.co.uk



THE END OF GOOGLE APPS

Android phones are set to have less bloatware installed, thanks to a recent policy change from Google

Think bloatware and you'll normally think of Samsung's attempts to replicate and replace every Google app. Or Sony, trying to sell you on its entire ecosystem. Or some no-mark tablet maker that thinks bundling a bunch of already free games will somehow improve the value of its product.

The full list of apps that were once mandatory, but are now optional, reads: Google+, Google Play Games, Google Play Books, Google Play Newsstand, Google Earth and Google Keep. Don't

Yet so much of what we think of as the Android experience actually comes from Google: Chrome, Google Maps, Gmail, YouTube, and Google Play services tying it all together. If a manufacturer wants these apps, it must conform to certain guidelines set by Google. This includes the

insistence that if you want one Google app, then of course you must have them all.

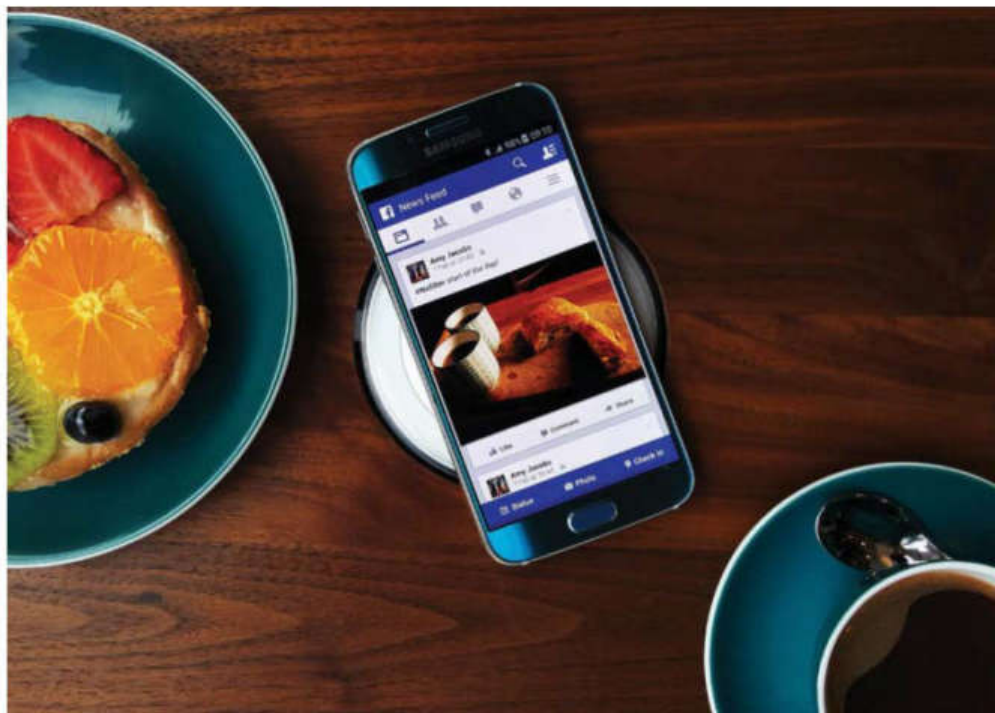
While there are a few outliers, such as Amazon's Fire OS, for most manufacturers the prospect of going Google-less isn't an option because Google also owns the Play store. Although you can find third-party alternatives for the browser and maps, if you don't have a fully stocked app store then you don't stand much of a chance. Just ask Microsoft.

Which is where the bloatware comes in. You want the Google Play store? Then you've got to have Google Newsstand too.

Google's change of mind on this policy is a good thing for everyone. It's less restrictive for manufacturers and there is less clutter for users too. Plus – and this may be part of the motivation behind the move – it's less likely to draw attention from competition watchdogs.

Here to stay

This is not to say that bloatware is going away. It's a fact of life for all devices. Even Apple fills iOS with bloatware, including an unremovable Apple Watch app and the infamous Stocks app, which has been



The Galaxy S6 had a massive 56 pre-installed apps

the bane of iPhone users since day one. Every new generation of handsets brings with it hopeful rumours that the manufacturers will be foisting fewer apps upon us. This year it was Samsung, yet the Galaxy S6 actually ended up with an incredible 56 pre-installed apps, six more than the Note 4 had last year.

Motorola is one of the few companies out there that sticks close to the pure Android template. Marcus Frost, senior marketing director for Motorola, explained, "we believe it's crucial to be as near to stock Android as possible.

"The reason for that is that leaving Android as it is allows the phone to be uncluttered and to be really silky smooth to use," he wrote on the Vodafone blog. "Other manufacturers add

bloatware or customisations that don't really add anything to the experience, and that often means that the phone will end up slowing down over time."

Google's influence

Google's actions have a tendency to guide the rest of the industry. The company was a leader in the move away from SD cards and removable batteries, and its Material Design has been hugely influential on Android and beyond.

We're not expecting a glorious era of bloat-free smartphones to begin any time soon, but hopefully the decision to address its own bloatware will finally cause other manufacturers, and networks, to do the same.



Motorola devices are often described as 'pure Android'

Why bloatware doesn't waste your space

Bloatware is annoying, but it isn't the waste of space that you probably think it is. Having an app pre-installed does not eat into your available storage and uninstalling it will not free up space, even if you use a root-based method.

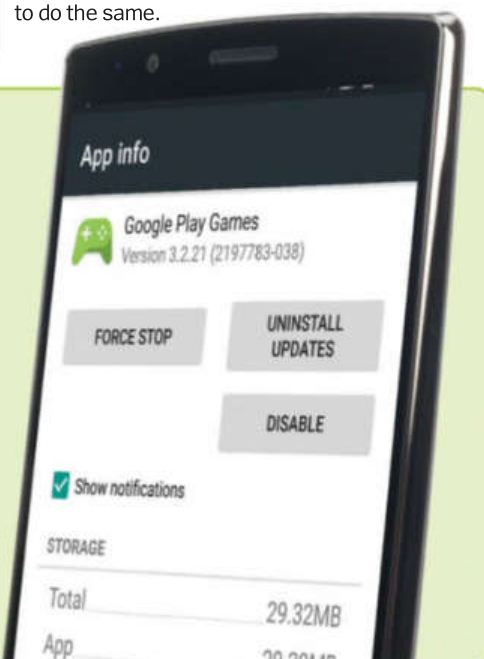
A device's storage is partitioned into several sections. These include a data partition, the bit where all your stuff goes, and a system partition, where the OS is. Pre-installed apps go into the system partition. Uninstalling an app from here

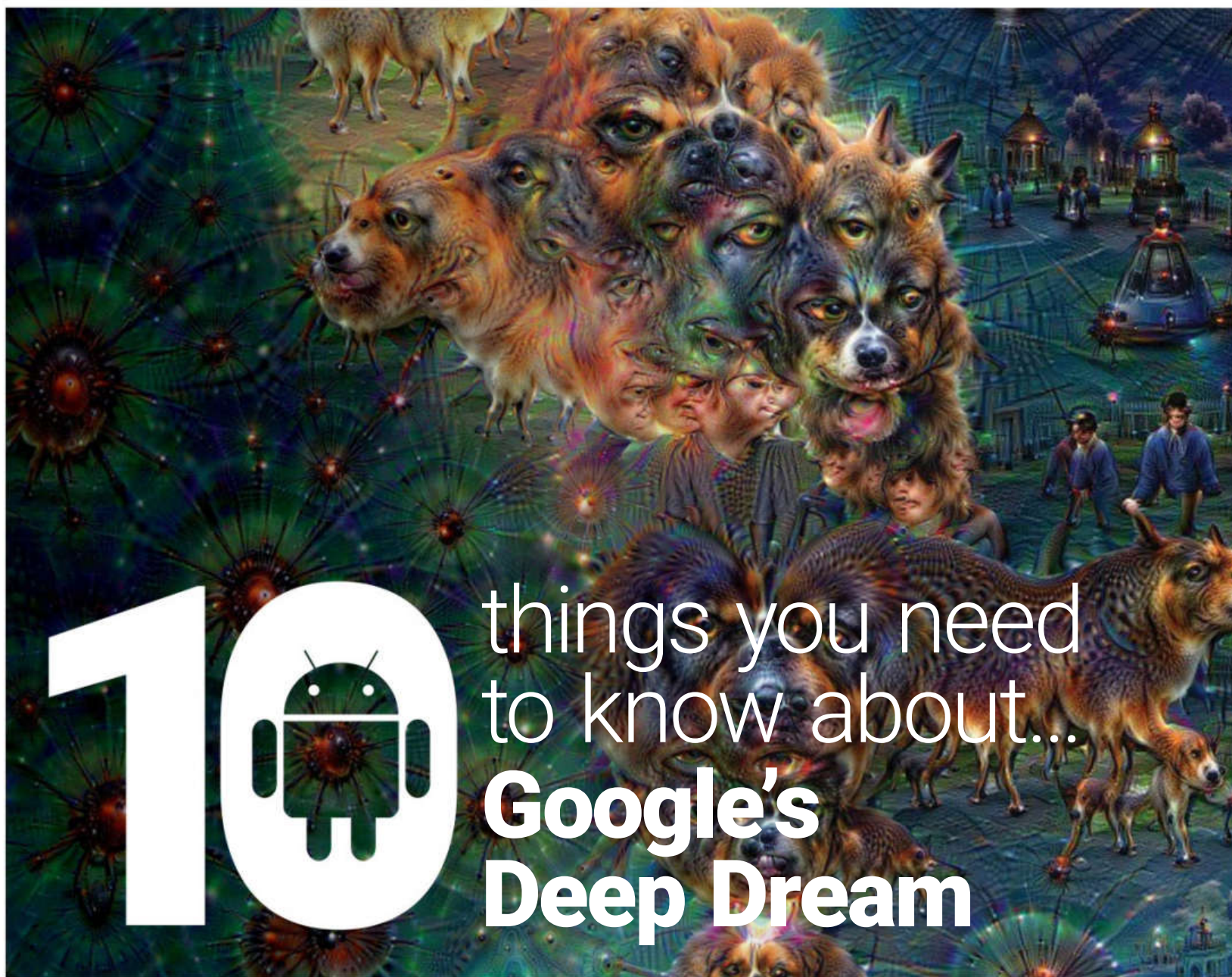
does free space in the system partition, but that space will not become available for anything else, so it's a moot point really. Incidentally, it's the same with anything else that is pre-installed: ringtones, wallpapers, sample movies and so on.

Sometimes these apps can be uninstalled, such as through the Play store by going to Settings>Apps and locating it there. If not, it **can** almost certainly be disabled in the same place.

Disabling an app uninstalls any updates that have been made, deletes all the data and settings stored in it too, removes it from the app drawer and prevents it from using any system resources, such as RAM or processor power. It is no less effective than uninstalling.

It's easy to disable any unwanted apps

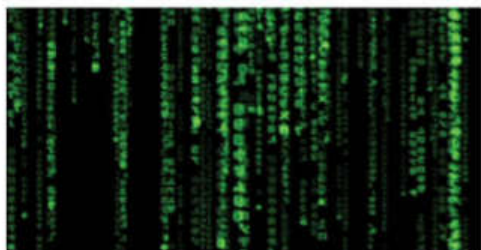




things you need to know about... Google's Deep Dream

What is Deep Dream?

These strange images look like the stuff of nightmares, but they are actually the product of Google's Deep Dream algorithm. This code is part of Google's 'machine learning' artificial intelligence software. Intended to make image searching more intuitive, Google has been teaching it to recognise what things look like. This will aid the software in understanding the context of an image search, for example, when you type 'fork' it will display pictures of cutlery rather than forks in the road.



Why is it being used?

However, while the main aim of Deep Dream is to help contextualise the world around us and improve online searching, a quirk in the code produces spellbinding surrealist art. When shown images, the software tries to slightly change them to match the patterns it has learnt to identify, often transforming them beyond recognition, creating vivid and lucid images. Realising its artistic potential, Google has now made the Deep Dream code open to the general public.



Try it for yourself

Google has made the Deep Dream code that was used to generate these bizarre images open source, making it available in an IPython notebook. The code is based on Caffe, uses available open-source packages and is designed to have as few dependencies as possible. You can view `dream.ipynb` directly on GitHub, or clone the repository, install dependencies listed in the notebook and play with code locally. Download it for yourself from github.com/google/deepdream.



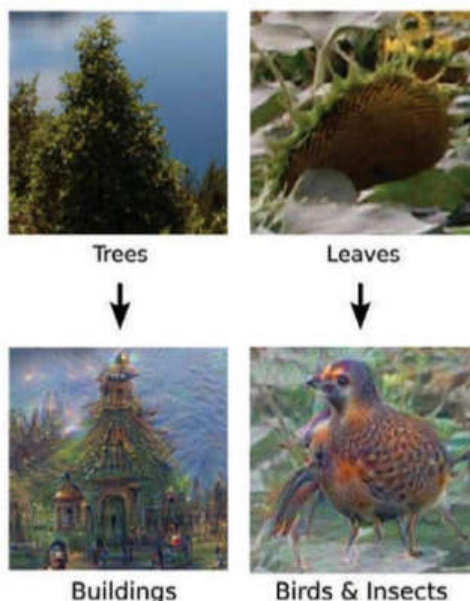
Or you can always find someone to do it for you

If GitHub means absolutely nothing to you, trying to play around with the complex code is probably a bad idea. Fortunately, numerous websites have sprung up to put your own photos through Deep Dream's unique framework for free. However, for the best results and no delay in image processing, *Deep Dreamer* by Realmac Software produces great images for £9.90. For more information, visit realmacsoftware.com/deepdreamer.



How does it work?

To test how well it works, Google engineers showed millions of images to ANN, which filtered each image through ten to 30 stacked layers of artificial neurons. Each layer extracts more information about an image, eventually spitting out what it thinks the image is. If it's wrong, the engineers can then adjust the parameters and dig into the layers to find out at what point in this game of Chinese whispers the error occurred.



It's gone a bit rogue

As with all experimental technology, there are teething problems and ANN can sometimes get confused. When Google engineers asked it to recognise a tree, it thought it was a building. It also changed a plant to a bird and added disembodied arms to images of dumbbells. As most of the images it has seen of dumbbells have people's arms in shot, it naturally assumed they were part of the object. ANN recognises the shapes perfectly well, but not the finer details.

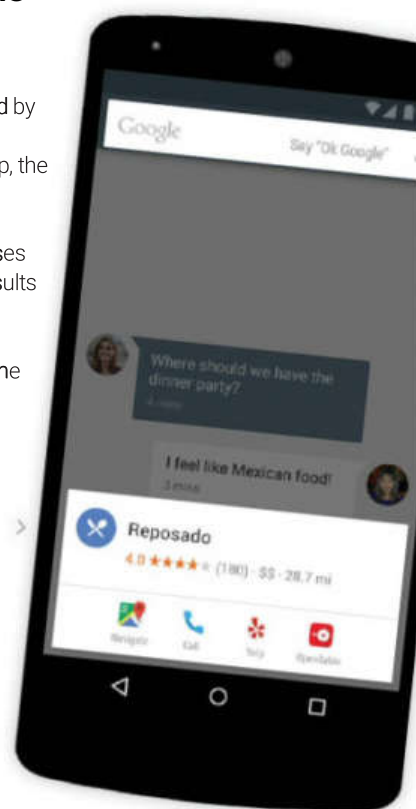
You will see puppyslugs

Yes, it sounds horrible, but for some reason Deep Dream sees a huge number of puppy faces and slugs in the images it has been fed. This leads to a lot of the images created by the software being littered with these unsettling images of dogs and slugs merged together. Especially in places where they have no usual right to be, such as the sky or in bowls of cereal. Check out [#puppyslug](#) on Twitter to see just what we mean, but don't expect to sleep easily afterwards.



It's the basis for Now on Tap

We were fascinated by the possibilities of Google Now on Tap, the evolution of the Android's personal assistant. It promises to deliver better results and be able to understand vague queries based on the context of your search, such as asking 'What band was he in?' when listening to a particular artist. It will also pick up keywords on your screen and deliver search results based on them. ANN is the framework Now on Tap will use.



People are going to get creative with Deep Dream

Whenever something like this exists, you know that people are going to take the technology and run with it. This is already happening with Deep Dream as people are mashing series of images together to create Deep Dream GIFs that are truly terrifying. The best example we have seen so far is from YouTuber Roelof Pieters, who recreated a scene from *Fear and Loathing in Las Vegas* using Deep Dream. When you can make that film more freaky than it was, then you know you're playing with some crazy technology.



Deep Dream is going to shape your online future

Even though it's a fun thing to play with, everything that is created using Deep Dream is going to have a practical benefit. An eye that appears on your arm will provide data to the network for understanding the human form and your puppyslug will reveal further intriguing bugs in the system. This will help Google to make any future search you do a lot more accurate and we think that's worth a few sleepless nights.

NEW TECH | Mobile alcohol measurement

Floome breathalyser

Discover if you're safe enough to drive with the Floome breathalyser

Drinking and driving is an incredibly serious issue, but it can be all too easy to have a couple of drinks and fool yourself into thinking you are sober enough to drive home, even though you're over the limit.

Floome is a mobile breathalyser that tells you how high your blood alcohol level is. Accompanying the compact gadget is a very well-designed app that not only has a number of vital functions, but plenty of added extras that make this well worth trying out if you often find yourself stranded after a night in the pub.

After taking the test, it displays your reading in big numbers on the screen. It turns green if you are below the legal drink-drive limit for your country and red if you are over, so you can be left in no doubt if you are legally safe to drive. Should you be in the red, you can then press a button that alerts a friend to where you are, another to find local taxi companies and another to find places nearby that serve food to help sober you up to get home safely.

Judgement

Using your personal details, the Floome will provide you with a rough time for checking again to see if you are okay to get in the car. However, you should obviously use your own judgement too and don't completely rely on this feature

At a glance

- » **Product name** Floome
- » **Available from** floome.com
- » **Price** €89 (approx £65)

The miniaturised self-test breathalyser

Compatibility

Floome plugs into your phone's audio jack so it is compatible with nearly every Android handset on the market. It is palm sized and won't be too annoying to take on an evening out either

Accurate

It has been made with the same technology as in police breathalyser tests so it will provide a very accurate reading

Self-powered

You only need enough battery to run the app because the Floome is almost entirely self-powered, so you ought to be able to get a reading even if your phone's battery power is running very low

Q & A



We spoke to **Fabio Penzo**, the CEO and cofounder of 2045Tech, to learn more about the Floome

How accurate is the Floome?

A Extremely accurate. We have used the same grade sensor [in the Floome] as is found in police breathalyser machines so it will provide the same reading as a professional test. It was very important to us to make this very safe and accurate.

Everyone has a different tolerance to alcohol though. How have you made sure that the Floome's readings are correct for everyone?

A Firstly, the sensor itself is extremely accurate, so your readings will always be correct. We work out an estimate for how long it will take you to be under the drink-drive limit based on the information you input, such as

your height, weight, age and gender. However, this is just an estimate, so you will need to take another test afterwards to see if you are below the limit. We thought this was a good feature to add because it will help people decide whether it is worth waiting and having some food and water or using other methods to get home.

Is there any risk that this is promoting driving just under the legal limit?

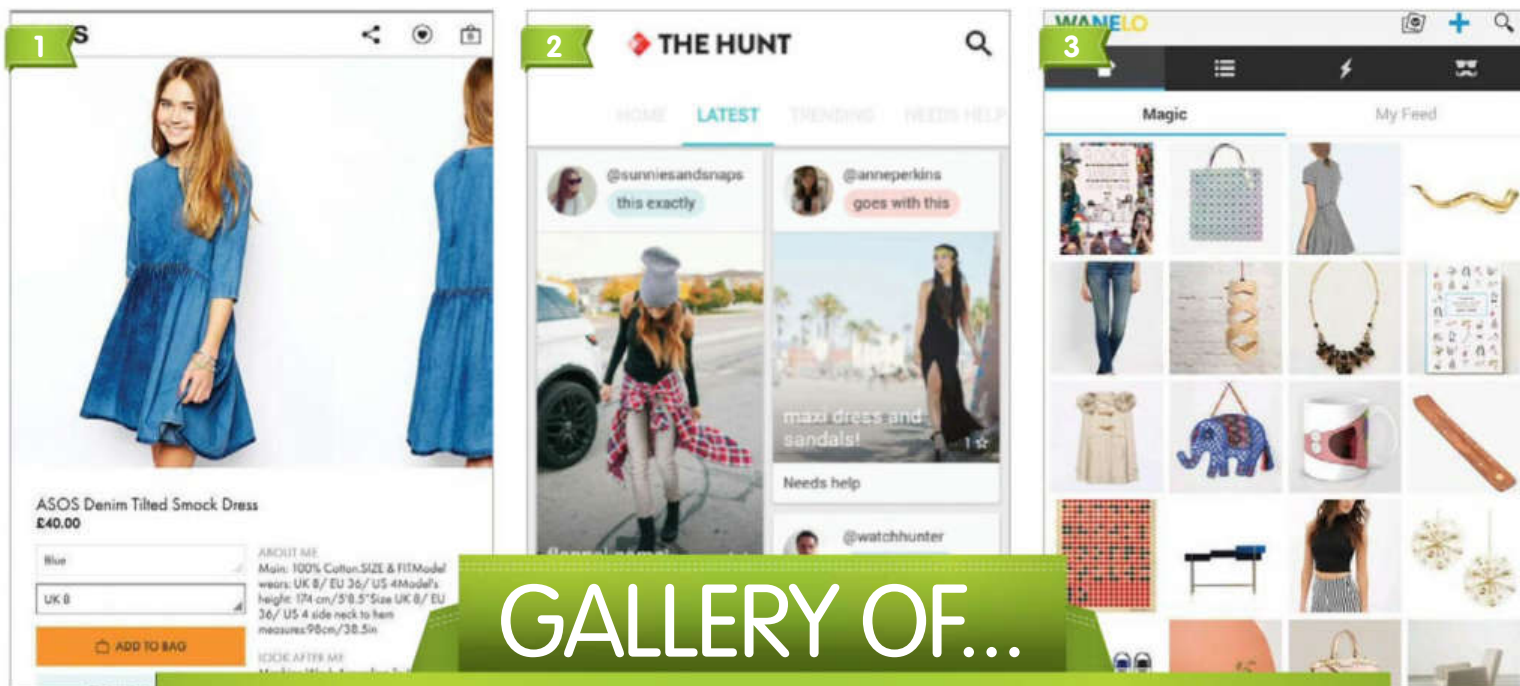
A We designed Floome to help people have fun yet drink responsibly. Our mission is to develop products that help consumers improve their lives through technology and Floome does just that, one blow at a time. If you have one of these, you won't drive over the dangerous limit. Also, that is why we have included the options to call a friend and send them your location or find local cab companies. We want to give our customers as many options as possible so they can avoid drinking and driving.

How does it use so little power?

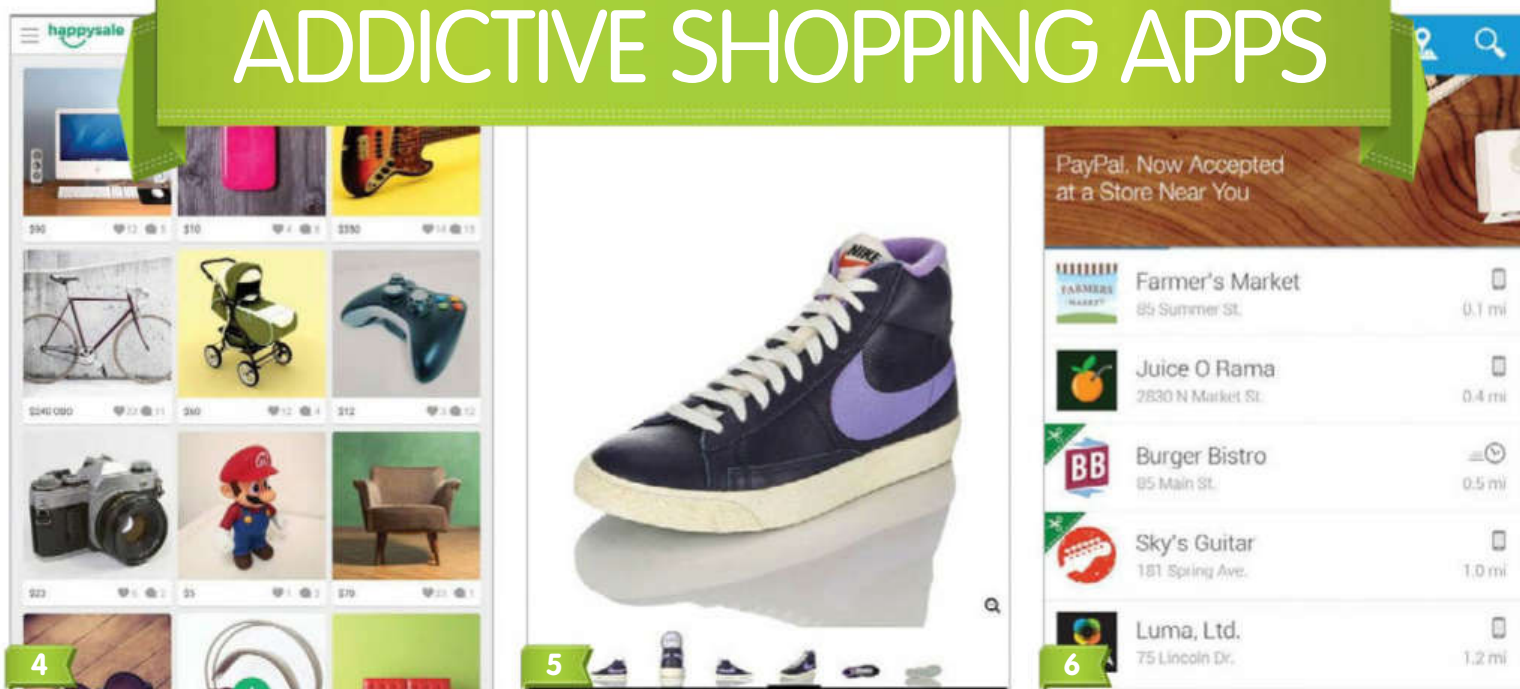
A We have a patent pending on the power system for the Floome, so I'm afraid I can't really go into it that closely. But the technology inside it means that it practically self-powers, so [it] won't drain your battery at all while it's working. Apart from a tiny bit, the only energy it uses is the energy to power the app, which is no more than most apps.

Have you included any health warnings inside the app?

A There are no health warnings as such, but you are able to see your drinking history. Each reading is saved [in the app] so you can see how often you have tested yourself, each reading [taken] and how often you have been over the limit. We hope that people will use this as a guide to realising if they have been drinking too much and take the relevant steps.



GALLERY OF... ADDICTIVE SHOPPING APPS



1 ASOS

The number one online fashion destination also has a brilliant app, giving you access to over 850 high quality brands on the go. It is super easy to search and pay for items, while you can also get customised push notifications on your favourite items.

» Price: Free

2 The Hunt

The Hunt is a thriving social community of 3.5 million users who give each other advice on how to find the latest trends and edgy clothing. It's a great place to find some inspiration on getting the best clothes and accessories.

» Price: Free

3 Wanelo Shopping

Wanelo Shopping is your very own personalised shopping assistant. The more products you save, the better it is at showing you products tailored for you. It searches high and low across large companies and some smaller boutiques.

» Price: Free

4 HappySale – Sell Everything

HappySale was invented as a way for users to locally sell the things they love, but no longer need. All you do is take a picture of the item you want to sell, add a description and then share it on a social network for free.

» Price: Free

5 Amazon BuyVIP

If you want VIP access to some brilliant sales, check out Amazon's BuyVIP app that offers limited-time events with top brands at jaw-dropping prices of up to 70% off. There are daily sales of clothes, shoes, jewellery and more.

» Price: Free

6 PayPal

If you're looking for a safe and secure way to pay for goods online, look no further than PayPal. Download the application to get quick and easy access to your account, as well as the ability to pay in thousands of stores across the country.

» Price: Free

ANDROID 6.0 MARSHMALLOW

THE COMPLETE GUIDE

Everything you need to know about the latest Android operating system

All year we have been speculating about what the final version of Android 6.0 might bring as Android attempts to repair the damage of the fragmented and bug-riddled Lollipop.

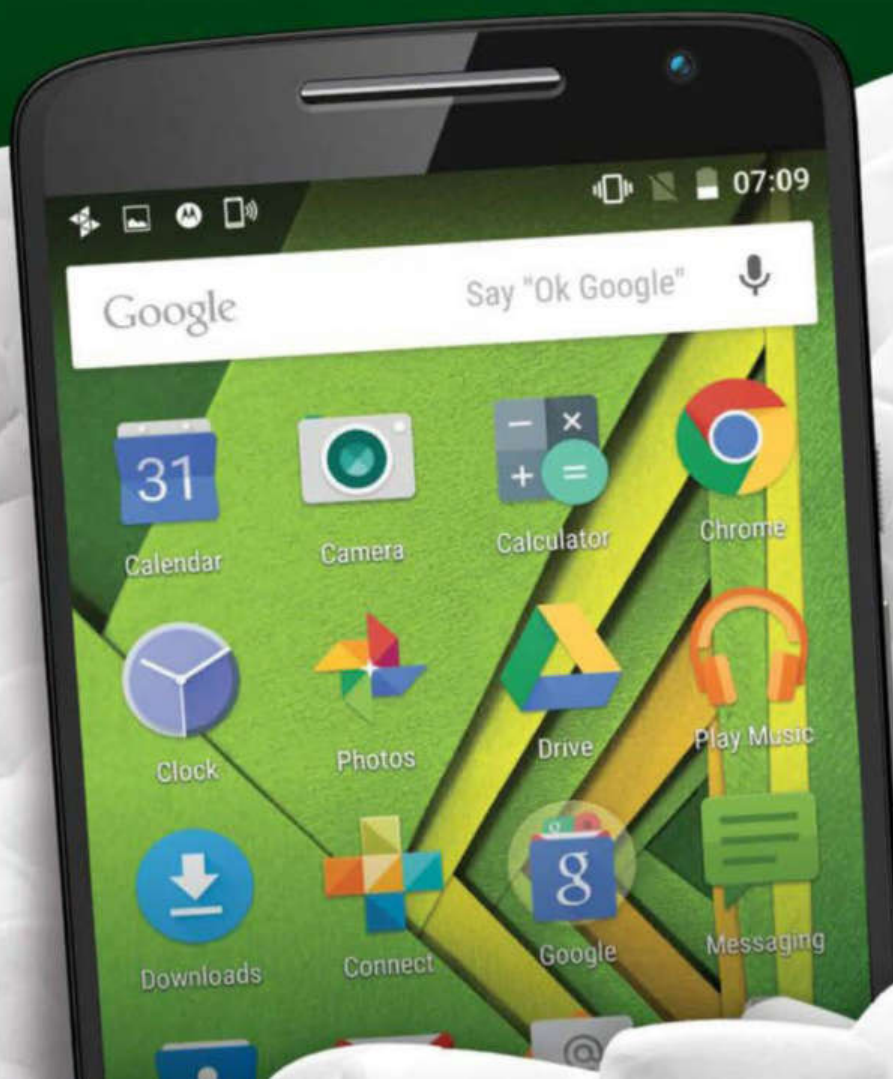
As we saw in the initial developer preview, Android Marshmallow will be a much more incremental upgrade than Android 5.0, ironing out bugs and improving the user experience along the way. The first preview brought back the Do Not Disturb mode, introduced personalised app permissions, added the ability to delete apps

from the homescreen and made checking memory usage much easier.

The latest developer preview has rolled out a few extra features, such as a new boot animation, stock fingerprint support and a landscape mode for your homescreen. These features can only be obtained by using a rooted handset at the moment, but the official consumer release is just around the corner for Nexus mobiles. We're strongly hoping that Google has learnt from the fiasco of the Lollipop release and will work more

effectively with carriers to push Marshmallow out to people as quickly as possible.

In the meantime, take a look around the final developer preview for Android Marshmallow and its many user-friendly updates that should smooth out a lot of the issues Android users have with their mobiles. Some features, such as the fingerprint scanner, will obviously be affected by the kind of phone you have, but the majority of users should be able to enjoy all these features within the next few months.



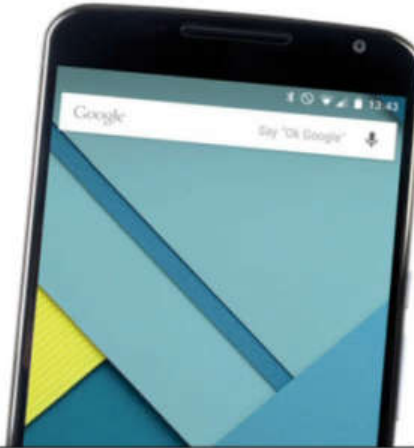
When will I get it?

Estimates for when each phone will receive the Android 6.0 Marshmallow update



Samsung

Samsung Galaxy S6, S6 Edge, S6 Edge +, Note 4 and Note 5
October/November 2015



Nexus

Nexus 5, Nexus 6, Nexus 9 and Nexus Player
October/November 2015



HTC

HTC One M8, M9 and M9+
December 2015/January 2016



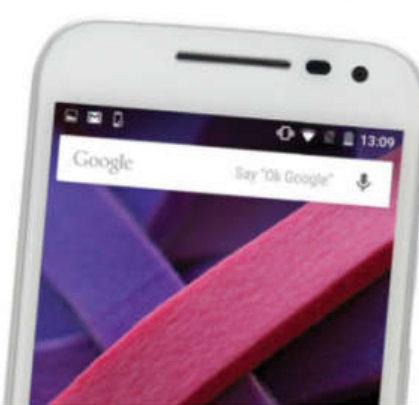
Sony

Sony Xperia Z3, Z3 Compact and Z3+
December 2015/January 2016



LG

LG G3, G4 and G4 Pro
November 2015

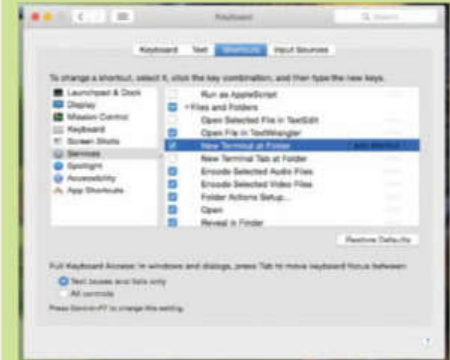


Motorola

Moto X Play, Moto X Style and Moto G 2015
October/November 2015

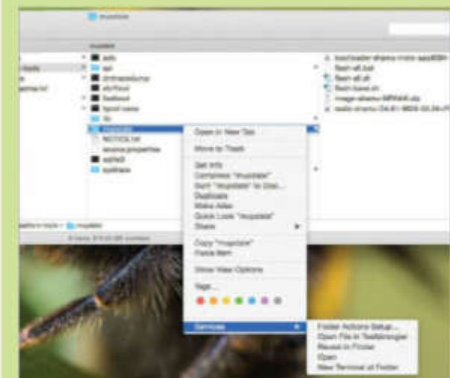
How to get Android Marshmallow

A quick guide to flashing the latest ROM



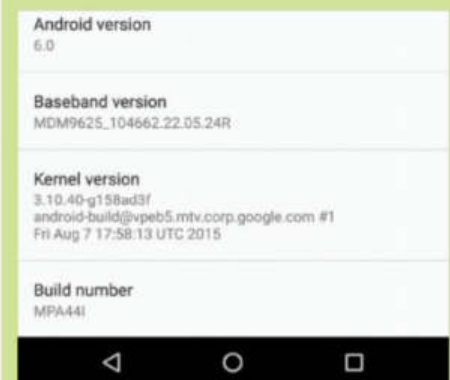
1 Download and boot

Download ADB tools and unpack it. Then restart your handset in bootloader mode by turning the device off and holding both the power and volume down buttons.



2 Connect it up

Plug your Nexus into your computer, open a browser window and locate the downloaded unpacked files. Then double click the flash-all.bat file.



3 Restart your device

Once it has finished flashing onto your handset, restart your phone and you should now have Android Marshmallow.

Android Pay works just like Samsung Pay – swipe your phone as you would a contactless card

Android Pay

Let your phone replace your wallet

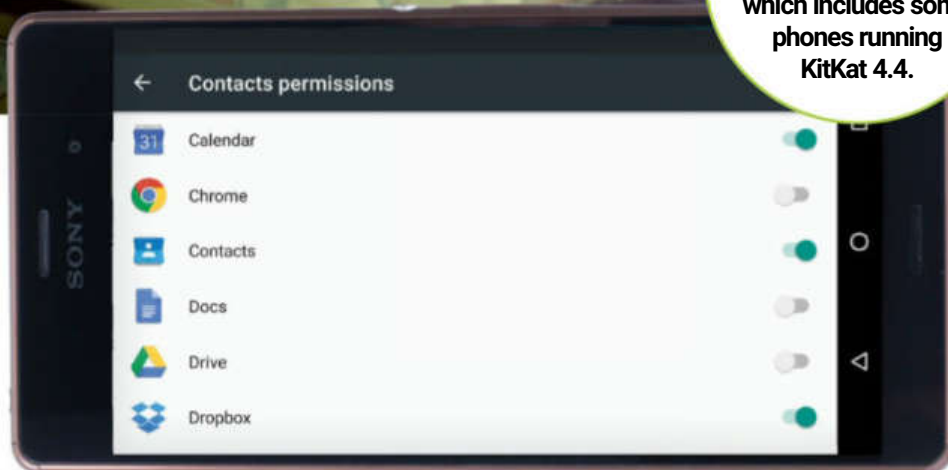
Android Pay is launching alongside Marshmallow, bringing Google up to date with Apple and Samsung in offering a mobile payment service. Users will download the Android Pay app and load it with their supported credit card. When paying for an item at one of over 700,000 merchant terminals, all you will have to do is swipe your phone as you would a contactless card and the app will create a payment token for the transaction, keeping your card details safe from prying eyes. It will be launching in the US soon, with a global roll-out expected in the coming months.

You ought to be able to use Android Pay with any phones that have NFC capabilities, which includes some phones running KitKat 4.4.

Personalised app permissions

Android Marshmallow now lets you stop intrusive app permissions

One of the most exciting things about Android Marshmallow has to be the launch of granular app permissions. Anyone downloading an app will now only have to grant permissions that are essential to the initial running of the app, such as your contacts list for a new dialer. Permissions to more personal areas of your phone will only be granted as and when you need them, such as access to your camera when uploading a photo to Twitter or Facebook. This is a huge step forward for safety and security as apps can no longer ask for blanket permission for any access they may need at some point in the future.



Set granular app permissions

1 Enter app permissions
Enter your Settings, scroll down to Apps and tap the cog in the top right-hand corner. This will open up your app settings from where you can edit your permissions. Hit App Permissions.

2 Alter app permissions
Tap on a menu, such as Contacts permissions. This will show you all the apps that have access or want access to that data. Tap the sliders to enable or block these apps access.

Defragmented fingerprinting

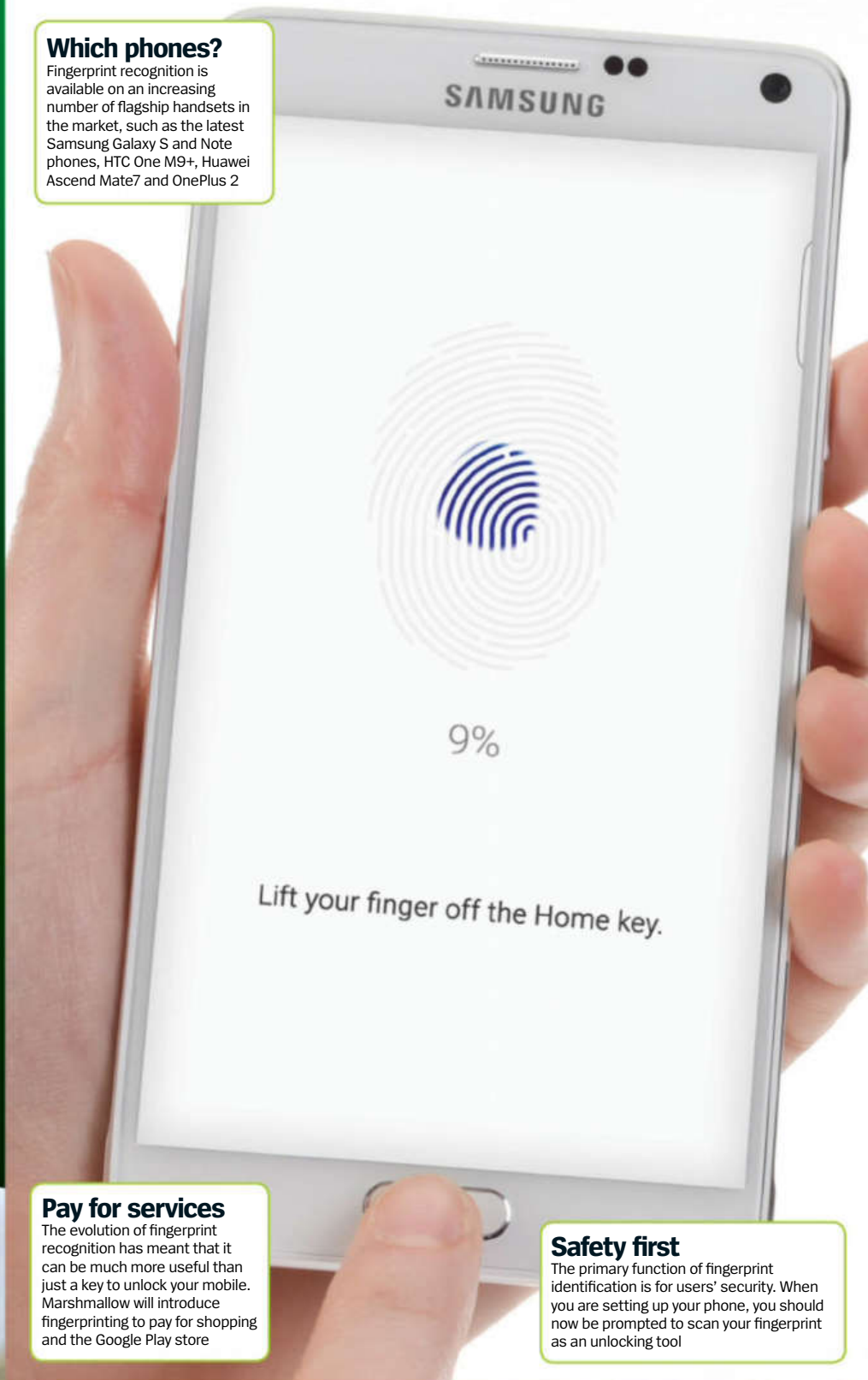
Fingerprint recognition has been a key part of a number of high to mid-range phones for a good couple of years now.

However, as with so many aspects of Android, it has been hugely fragmented across devices and has never been standardised. Marshmallow will be the first

Android version to make this step towards standardising fingerprint technology in all compatible devices. This will make it possible for Android app developers to make greater use of this secure identification feature. This should benefit the privacy of Android users around the world.

Which phones?

Fingerprint recognition is available on an increasing number of flagship handsets in the market, such as the latest Samsung Galaxy S and Note phones, HTC One M9+, Huawei Ascend Mate7 and OnePlus 2

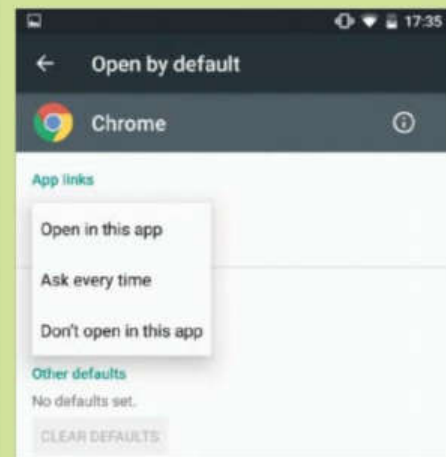


Pay for services

The evolution of fingerprint recognition has meant that it can be much more useful than just a key to unlock your mobile. Marshmallow will introduce fingerprinting to pay for shopping and the Google Play store

Safety first

The primary function of fingerprint identification is for users' security. When you are setting up your phone, you should now be prompted to scan your fingerprint as an unlocking tool



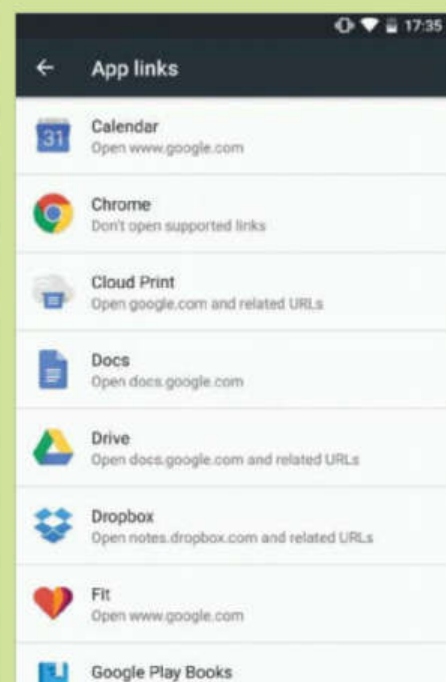
The dialogue box asking if you want to open a link in a particular app is a thing of the past with Marshmallow

Open app supported links

Personalise your app links

When Android M was announced, one of the minor upgrades that made a lot of people very happy was the fact that apps would now be able to open up links in supported apps without using the tedious dialogue box asking how you want it opened. In the latest preview, you can decide which apps will have the right to open automatically.

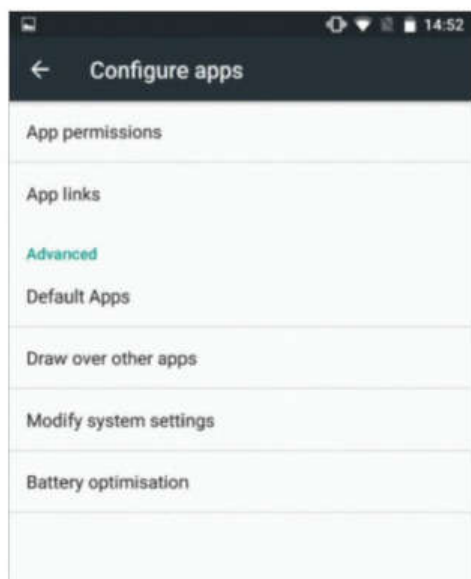
Jump into your apps menu, tap the cog, hit App links and from there you can see what will open automatically. You can remove or change automatically opened links here.



From the App links menu you can adjust which of your apps will open supported links

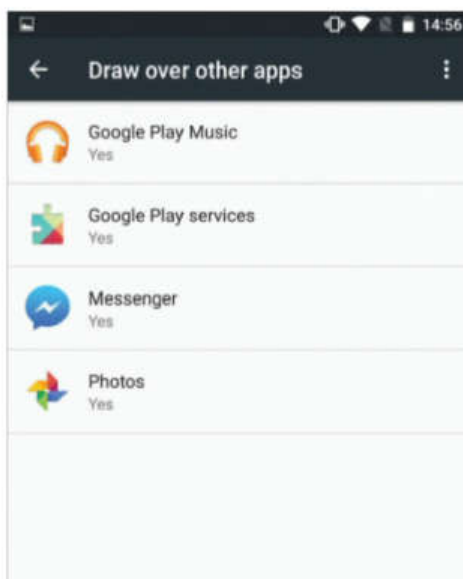
Disable floating windows

Stop Facebook Messenger popping up over the top of your gaming



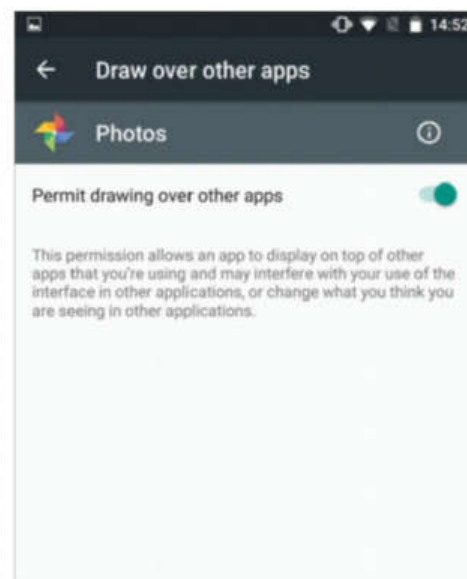
1 Enter settings

Enter your settings. After this, scroll down the list that appears until you find the Apps menu. Tap on that and then hit the 'Draw over other apps' option.



2 Draw over apps

This screen will show the apps that are currently enabled to pop up over other apps when in use, such as the Facebook Messenger bubble or Google Play Music.



3 Disable drawing

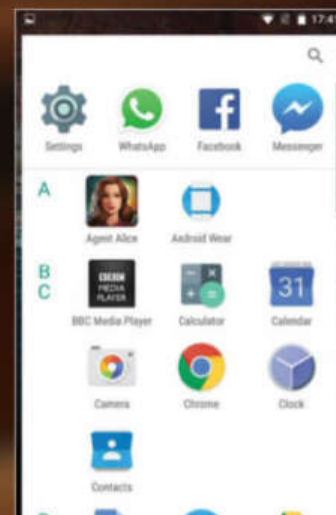
In the final screen, tap the slider 'Permit drawing over other apps' into the off position. Disabling it will prevent pop-ups from this app appearing above active apps.

The last time stock Android had a vertically scrolling app drawer was back in the days of Honeycomb. Ice Cream Sandwich to Lollipop used a horizontal menu.

Reformed app drawer

Android M drops the alphabetised list of apps

The initial developer preview of Android 6.0 literally revealed a new direction for the app drawer as the menu changed from the usual horizontal scrolling to vertical scrolling. It also included letters along the left-hand side of the screen, which was helpful as you could find your desired app a little faster, but it did make the screen look a bit patchy. The final preview has done away with this second change, returning the app drawer to the solid block of apps that we're used to. This results in a much cleaner, efficient look and ought to be here to stay, unless Google changes its mind again. The recently used apps at the top of the screen have made the cut as well, which we think is a good idea.



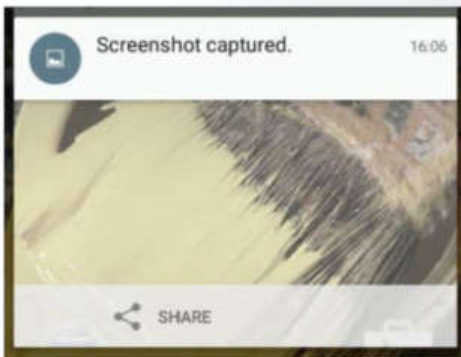
The alphabetised app drawer has not made it to the final preview

Easily delete screenshots

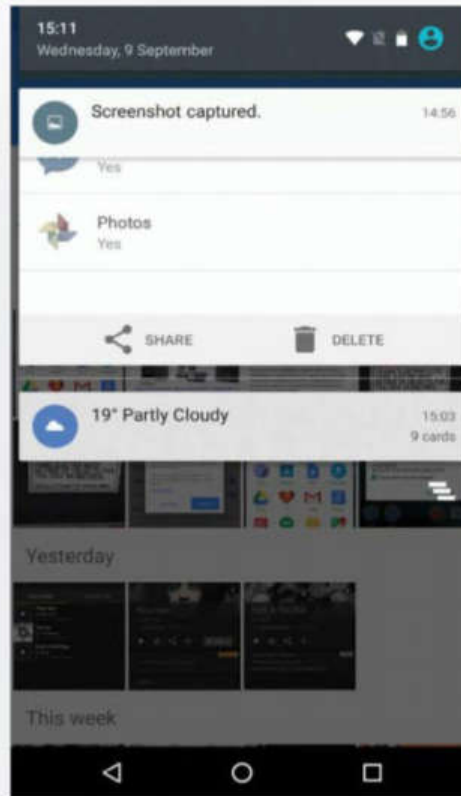
Deleting in preview mode returns

Android first added the ability to take screenshots in Ice Cream Sandwich, along with the ability to view, share and delete them in preview mode. However, in Lollipop the ability to delete screenshots in the preview mode was removed for some unknown reason. Instead, you had to open the image fully and then delete it from your gallery app.

This has now been rectified and put back in Marshmallow, so pulling down the notification bar after taking a screenshot reveals the familiar bin icon. This makes perfect sense and only goes to highlight the confusion and strange decisions that defined the Lollipop era.



When a screenshot is captured, preview mode will give you the option to instantly share it



Dragging down the notification bar will now reveal the share and bin icons

Activate System UI Tuner

How to customise your homescreen

The System UI Tuner is your new tool for editing the settings on your phone without having to worry about rooting your handset. If you've flashed Marshmallow onto your mobile, you'll have to activate the tuner.

1 Access settings

Pull down the Quick Settings menu all the way, so that it is fully open. Press and hold the settings cog for around five seconds before letting go.

2 Add System UI Tuner

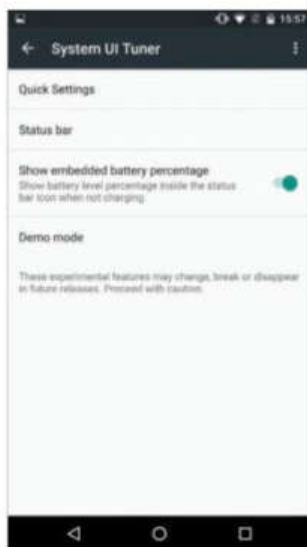
Once you've released it, you should see a text flash telling you that System UI Tuner has been added to your settings. If not, press and hold for a little longer.

3 Enter Tuner

Tap on the settings cog this time and scroll all the way down to the bottom of the menu. You should see System UI Tuner where you can edit your Quick Settings.

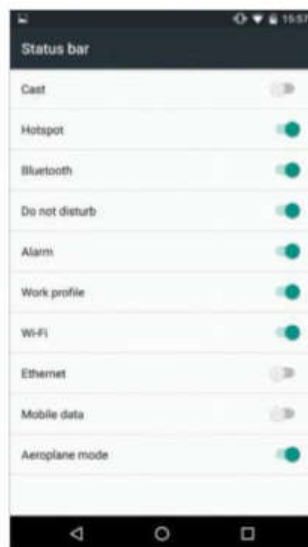
How to use System UI Tuner

Edit your quick settings using the new user interface tuner



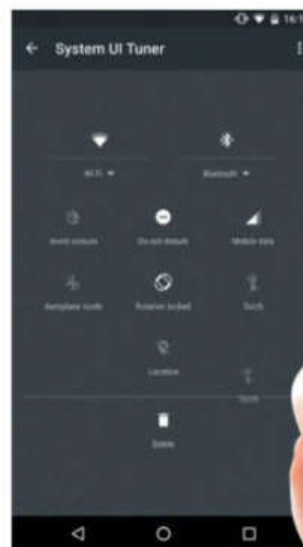
1 Show battery percentage

Head into your settings and scroll down to System UI Tuner. Push the slider labelled 'Show embedded battery percentage' from grey to green.



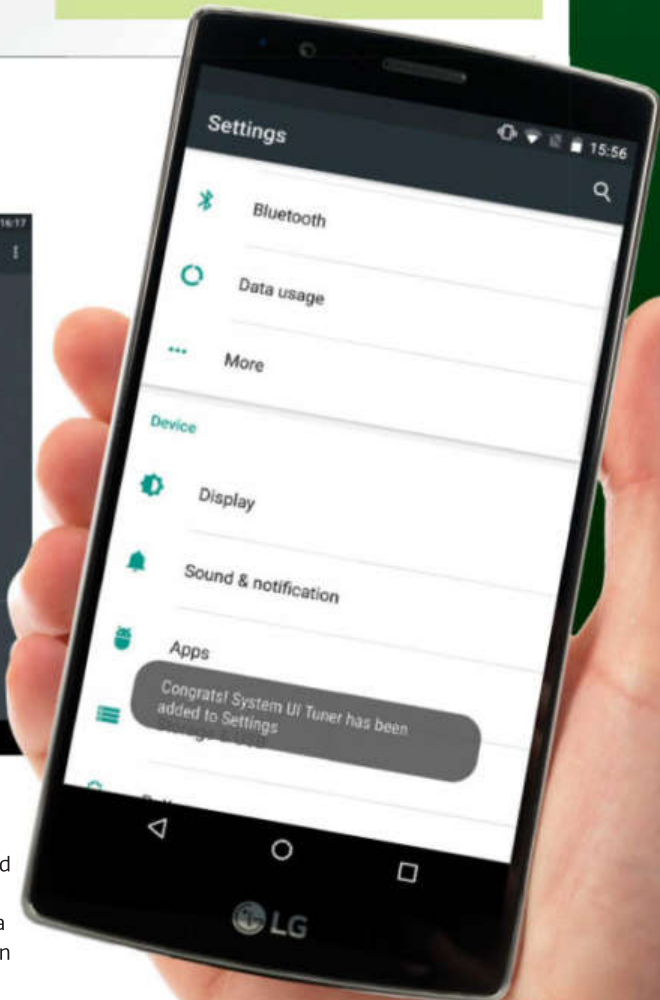
2 Alter your Status bar

Tap on the Status bar option in your System UI Tuner menu. From here you can remove all the options you don't want to appear in your status.



3 Alter Quick Settings

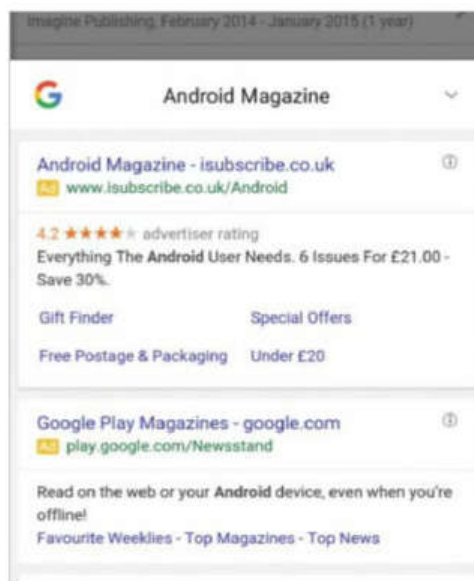
Tap on Quick Settings, tap and hold on an icon in your pull down menu. You should see a delete bin appear that you can drag icons into.



Now on Tap gets closer

The intuitive Google assistant takes another step forward

The next generation of Google Now was announced at Google I/O back in the summer. It promised an intelligent virtual helper that would understand the context of its surroundings and consequently become much more useful to its Android users. This preview hasn't quite brought us the full Google Now on Tap functionality, but it has inched slightly forward with new suggestion cards. Tapping and holding a word in any app will bring up a card at the base of the screen that performs a Google search for that word. Tapping and holding an actor's name, for example, brings up the top search results for that name without making you leave the app you're in. This isn't as instinctive as we are expecting in the full version, but it certainly shows that Google is on the right track.



The suggestion card that appears will show you the top search results for particular words

Google Now on Tap promises...

Contextual search

Google Now on Tap will bring contextual searching to Android users. You can ask it a vague question such as 'Who is this?' when listening to music and it will (hopefully) give you the right answer.

Film times and reviews

For example, pressing and holding the name of a film will bring up a Google Now card that provides you with all the relevant information. This could be your local cinema times or film reviews.

Private information

A big concern, as always, is users' privacy. However, Google has said that any information or data that is gained during a Now On Tap search will be instantly erased from the device.

How to remove Google Now on Tap

1

Enter Google Now

Swipe left from your homescreen or tap on the Google app to access Google Now. Hit the settings icon in the top left-hand corner to pull out the Settings menu.

2

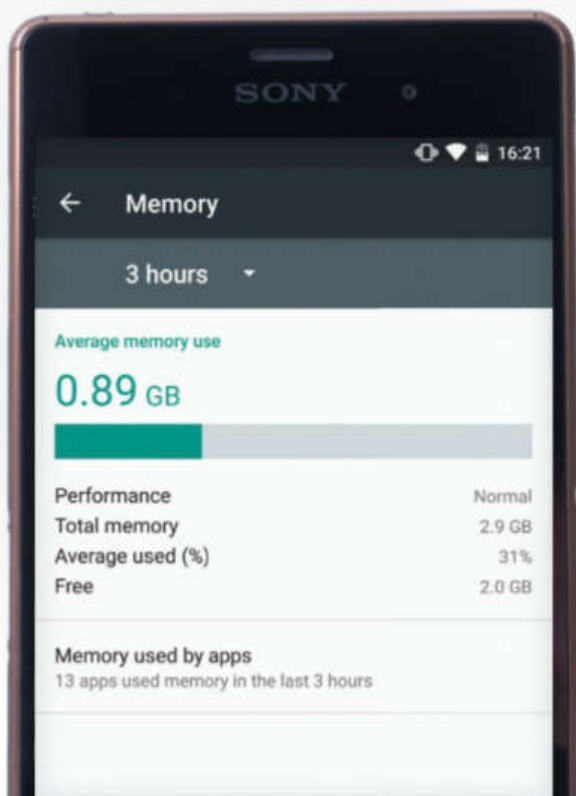
Now settings

Once you are in the Settings menu, tap on the Settings cog. Next, hit the Voice menu option. Once in here, you will need to hit the Now on Tap slider.

3

Now off

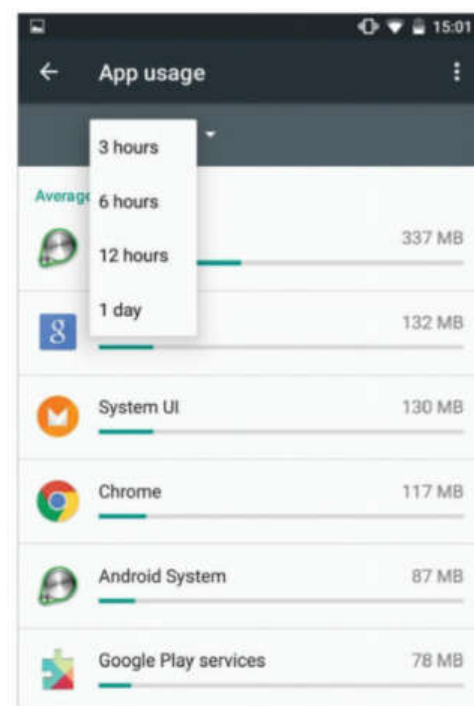
Hitting that slider will stop you being able to see any additional information about something on your screen. Simply tapping that slider again will reactivate the option.



Check memory usage

See how much memory each app on your device is using

Android Marshmallow has redesigned the way you see how much memory your apps are using. Head into the Memory menu located in your settings and it will flash up a bar showing how much of your phone's memory is being used on average over a period of time. From here you can also see how much memory is being taken up by individual apps and then close them if necessary. This is a much quicker way of seeing your memory statistics than the thin individual bars that were used in Android Lollipop. The performance tracker is also a welcome addition.



The new Memory menu shows you how much memory is being used by each individual app on your device



Doze uses motion detection in order to send your device into a deep sleep

Results on two identical Nexus 5s (one on 5.1.1, the other on 6.0) showed a stunning 333 hour difference in standby battery life.

How Doze saves your battery

- 1 Inactivity recognition**
Doze uses motion detection to see when your phone is not in use (yet still on) and, as a result, wasting battery. By going into a deep sleep mode it can double your battery life.
- 2 Disable Wi-Fi access**
Doze disables Wi-Fi connectivity and prevents notifications coming through unless it is a high priority notification. This is to stop your phone constantly searching for internet signal.
- 3 Wake locks ignored**
Some apps have wake locks to stop or slow your phone from dimming the screen. Doze ignores them in order to put your phone to sleep as quickly as possible.

New boot animation

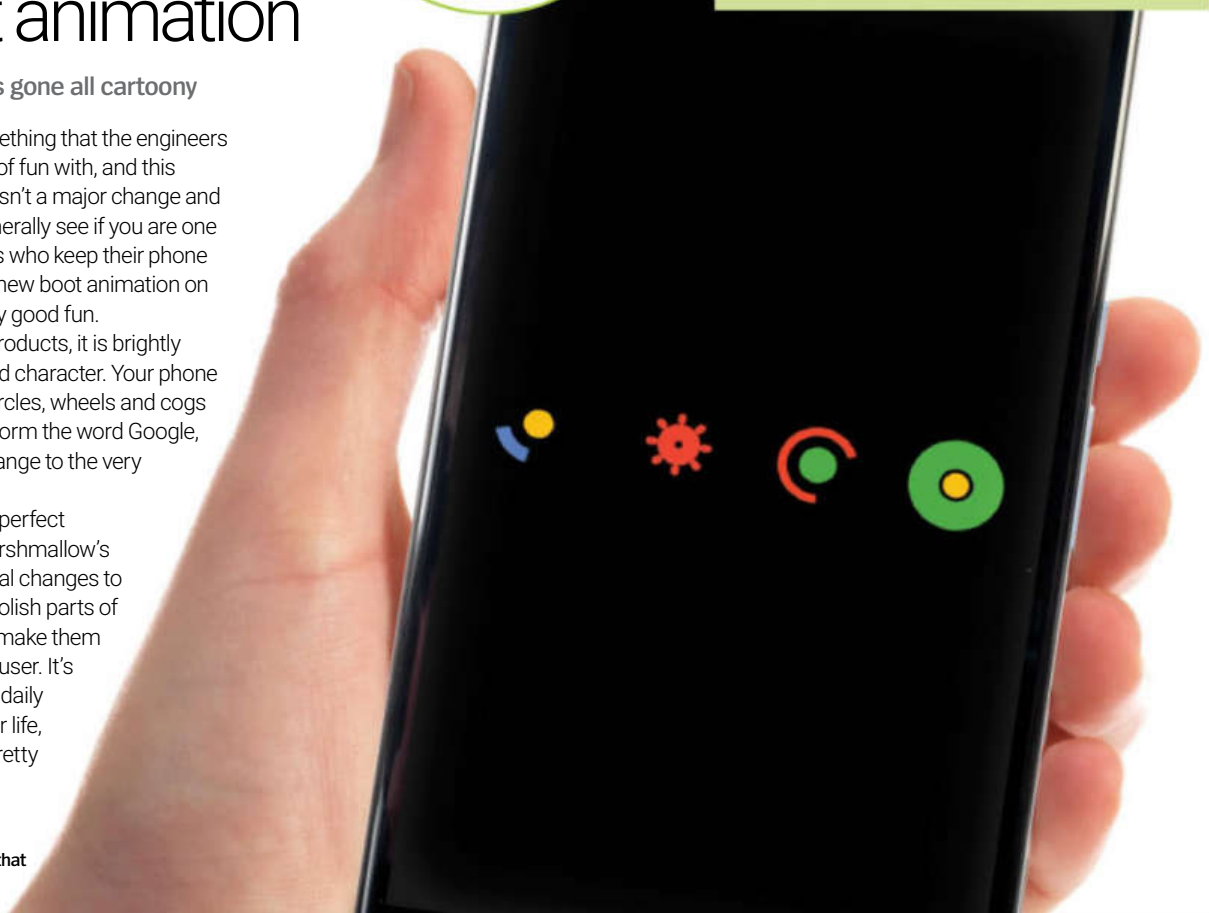
Google's new startup has gone all cartoony

The boot animation is something that the engineers at Google can have a little bit of fun with, and this version is our favourite yet. It isn't a major change and not something you would generally see if you are one of the millions of mobile users who keep their phone turned on constantly, but the new boot animation on Android Marshmallow is really good fun.

Like so many of Google's products, it is brightly coloured, full of energy, life and character. Your phone loads with a row of swirling circles, wheels and cogs that look like they're going to form the word Google, but at the last minute they change to the very familiar Android logo.

This new bootloader is the perfect representation of Android Marshmallow's mission of making incremental changes to Lollipop that will tidy up and polish parts of the new operating system to make them much more enjoyable for the user. It's not something you'll see on a daily basis and it won't change your life, but the new animations are pretty enjoyable to watch.

Android Marshmallow's new bootloader is full of colourful icons that morph into the Android logo



Removed features in the third preview

Will these features make the final cut?

Rotating homescreen

The ability to have a landscape homescreen was present in the second preview, but it has disappeared in this third preview.

Dark theme

A popular feature of the first M preview, Android users were disappointed when the dark app drawer theme went missing.

Google Translate

In the second preview you could tap a word and have it instantly translated, but that too was dropped for the final preview.

TOP 10 PHONES YOU HAVE NEVER HEARD OF

With the big boys faltering, is it time for a new breed of mobile manufacturer to hit the market?

For over a decade now, a handful of huge companies have dominated the phone scene. Samsung, LG, HTC and Sony represented an enormous majority of the market share, leaving little room for competitors as Android fans flocked to buy phones from companies they knew and trusted. Recently, however, there has been a shift with an increasing section of the public becoming disillusioned with the lacklustre offerings from the established brands, maybe because of a perceived lack of innovation or the loss of SD card storage and removable batteries. Also, the rise of companies such as Huawei, Xiaomi and OnePlus has shown that the public is willing to take a gamble on a new manufacturer. Many of these are cheaper than their big-name rivals. However, they haven't compromised on quality or materials, but instead chose to save money by selling online.

This has given a number of companies, both start-ups and existing technology giants, the

confidence to enter the smartphone industry and consequently challenge the traditional Android powerhouses of the market.

Due to the intriguing change in the way people seem to be buying phones these days – online or a SIM-only deal, rather than the constricting 24-month contract – there is much more scope for unexpected players to enter the market and deliver new groundbreaking phones. The difficulty for them is to get noticed in among the products from the big-name brands, and as a result, it would be all too easy for an excellent phone to get completely lost. We've hunted high and low to find the ten phones that you probably haven't heard of yet and explain just what they might be able to offer in order to rival the likes of the Samsung Galaxy S6, HTC One M9 and LG G4. They've certainly got a long way to go, but these phones might just be able to carve a niche for themselves and join the smartphone elite.



ASUS ZenFone Selfie

Snap the sharpest selfies ever thanks to ASUS

ASUS ZenFone Selfie, yes you heard that right, was one of the surprise packages of last year and the ZenFone 2 is even better. The Taiwanese company didn't rest on its laurels and in a bid to really appeal to the younger generation (who rarely pass up an opportunity to snap a quick selfie) it has actually named a phone after the phenomenon. The highlight really is the fact that it's managed to squeeze a 13MP camera onto the front as well as the rear of the handset, so you ought to get equally good photos no matter which side of the phone you are shooting from. The rest of the phone stacks up well in terms of its specifications, taking an awful lot of the tech from the ZenFone that preceded it. If you love taking photos with that front-facing camera, but also don't want to compromise on the quality of the phone itself, this might be your next phone.

Technical specs

- »Operating system..... Android 5.0 Lollipop
- »Processor..... Qualcomm Snapdragon 615 1.7GHz octa-core
- »Memory..... 32GB storage / 3GB RAM (microSD up to 128GB)
- »Display size..... 5.5-inch
- »Display resolution..... 1920 x 1080 (403ppi)
- »Cameras..... 13MP rear, 13MP front



Lenovo Phab Plus

Bigger is better for this 6.8-inch phone

If you thought that the Samsung Galaxy S6 +, Nexus 6 and Note 5 were big devices then prepare for the Goliath to their David. Lenovo has announced it is launching the Phab Plus, a phone with an enormous 6.8-inch display. That's just 0.2-inch smaller than the Nexus 7 tablet and shows that the drive towards bigger screens hasn't come to a halt. Lenovo has said that the Phab Plus ought to sit in the 'sweet spot' between smartphone and tablet. To compensate for the huge screen size, Lenovo has added in a number of useful one-hand functions, such as shake-lock, press-anywhere photos and a shrinkable keyboard. Whether it fits in your pocket is another issue that it hasn't quite solved. It has plenty of

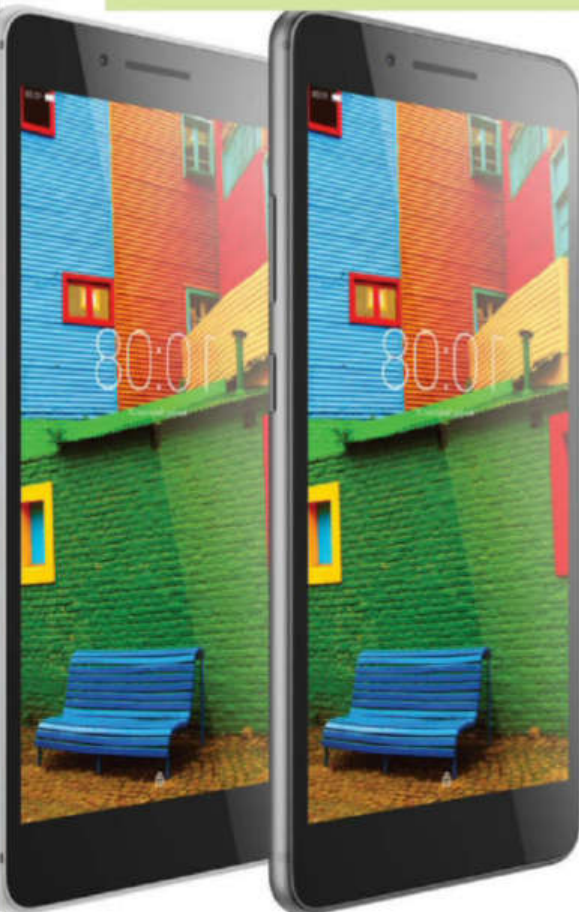
room for the 3,500mAh battery and that screen has a very impressive 324ppi. It runs Android Lollipop 5.0, has a 13MP rear-facing camera and 32GB internal memory.

Bizarrely, this phone might actually work. Plenty of people want a handset that they can watch TV and films on, but they don't want to pay for a tablet. It has the size of a tablet, but the camera quality and the ability to call and text of a phone. It's a fairly niche market, but it could sell, especially as it's available for a reasonable \$299, which comes in just under £200.

Technical specs

- »Operating system..... Android 5.0 Lollipop
- »Processor..... Qualcomm Snapdragon 615 1.5GHz octa-core
- »Memory..... 32GB storage / 2GB RAM (microSD up to 64GB)
- »Display size..... 6.8-inch
- »Display resolution..... 1920 x 1080 (324ppi)
- »Camera..... 13MP rear, 5MP front

“Whether it fits in your pocket is another issue”



Feature

» Top ten phones you've never heard of

Gigaset ME, ME Pure & ME Pro

The home-phone giant goes mobile

Gigaset is well known within technology circles for its production of home phones, modems, routers and home-motion sensors. It is fairly surprising, therefore, that the company has only just brought out its first smartphones, especially as Gigaset used to be part of the noted mobile phone manufacturer Siemens. It has just released three new phones onto the internet, hoping to make the most of its respect within the telephone industry. These three phones make up Gigaset's new ME range.

The lower end option is the ME Pure, which has a 5-inch screen, Qualcomm Snapdragon 615 processor, 2GB RAM, 13MP rear camera and retails at £249. It is cased in aluminium, which adds to its lightweight yet solid feel. Moving up a step is the ME. It's also a 5-inch device, but it uses a Qualcomm Snapdragon 810 processor, comes with a 16MP rear camera and 3GB RAM. This will cost £349, so a fairly hefty price jump, but you will get a lot more power for that figure and the amount of RAM is right at the top end for handsets in this price bracket.

Finally, the ME Pro is the handset Gigaset really hopes will garner some attention. It has a 5.5-inch screen, supports Type-C charging, an astonishing 4,000mAh battery, fingerprint detection, comes in a stainless steel unibody, and has 20MP rear and 8MP front Sony cameras. It is beautifully crafted and feels superb, but it hasn't really raised the bar in terms of design. One plus point is the audio that Gigaset is really proud of; it does sound excellent with low latency streaming ability. The other highlight is a seamless design with no holes, something that creates a sleek finish.

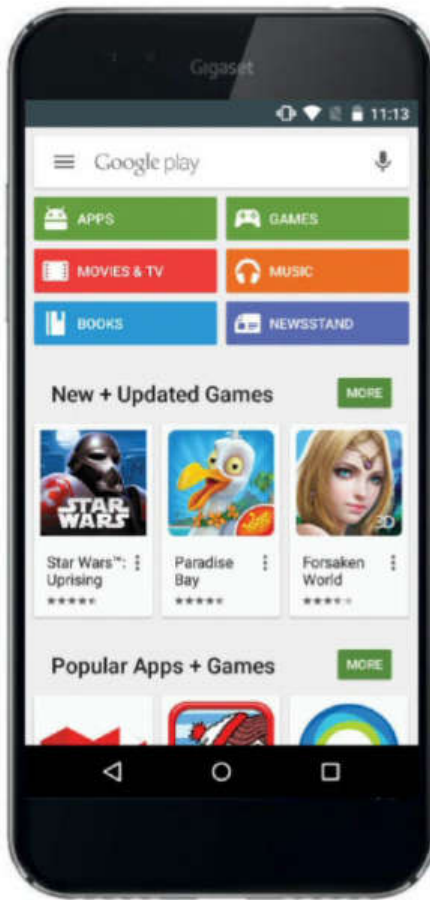
We are forced to compare these models with the recently launched Honor 7 as it seems to have very similar specs to the Pro yet costs the same as a Pure. So it will be interesting to see what the sales figures look like this time next year. All three Gigaset phones are extremely enjoyable to use, look great and sound even better, but the toss up for consumers will be the decision between established brands and price. When a new player enters the market, they are always going to need a hook in order to lure consumers away from their trusted brands, but we can't quite see what hook Gigaset has achieved with the new, albeit impressive, ME smartphone range.

"All three Gigaset phones are extremely enjoyable to use, look great and sound even better"



Gigaset technical specifications

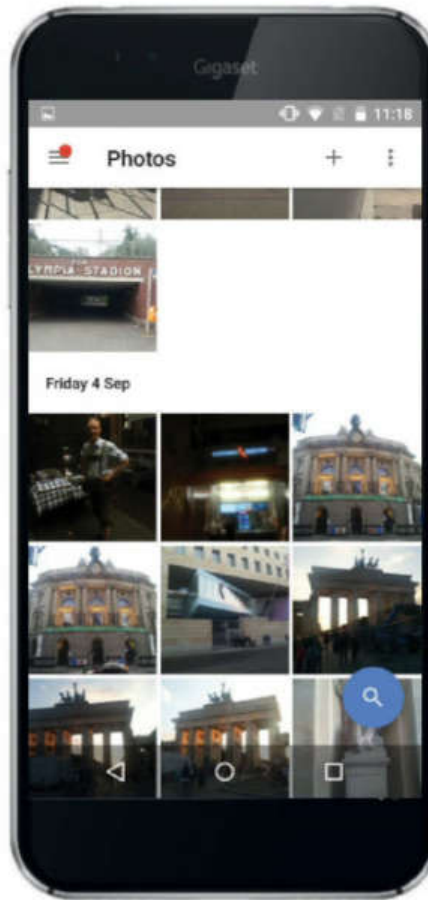
Take a closer look at the specifications of the ME Pure, ME and ME Pro



ME PURE

Technical specs

- » Operating system..... Android 5.1.1 Lollipop
- » Processor Qualcomm Snapdragon 615 1.5GHz octa-core
- » Memory..... 16GB storage / 2GB RAM (microSD up to 128GB)
- » Display size..... 5-inch
- » Display resolution..... 1080 x 1920 (443ppi)
- » Camera..... 13MP rear, 8MP front



ME

Technical specs

- » Operating system..... Android 5.1.1 Lollipop
- » Processor Qualcomm Snapdragon 810 1.8GHz octa-core
- » Memory..... 32GB storage / 3GB RAM (microSD up to 128GB)
- » Display size..... 5-inch
- » Display resolution..... 1080 x 1920 (443ppi)
- » Camera..... 16MP rear, 8MP front



ME PRO

Technical specs

- » Operating system..... Android 5.1.1 Lollipop
- » Processor Qualcomm Snapdragon 810 1.8GHz octa-core
- » Memory..... 32GB storage / 3GB RAM (microSD up to 128GB)
- » Display size..... 5.5-inch
- » Display resolution..... 1080p x 1920 (401ppi)
- » Camera..... 20MP rear, 8MP front

Q & A

We spoke to **Peter Marsden**, the managing director of Gigaset UK & Ireland to hear more about Gigaset and why he thinks this phone will succeed.

Why did Gigaset decide to release a smartphone range of its own?

A We just think the time is right. We've talked to customers in the UK and discovered that a lot of them are now separating their SIM and handset, [purchasing SIM-only deals] rather than tying themselves into long contracts.

Traditional manufacturers [and big brands] are having mixed fortunes so it's time for new players to come in.

Why do you think someone would choose a phone from Gigaset's new smartphone line?

A We are combining Chinese manufacturing with German engineering, two things that are globally respected. A lot of people trust Gigaset's reliability and I think that's what people want in a phone.

What is particularly good or different about the ME smartphone range that will make it stand out?

A Our insistence on the battery, for one. We wanted people to be able to use their phone so [we] have put a 4,000mAh battery in the Pro, a 3,320mAh [battery] in the Pure and a 3,000mAh [battery] in the ME. You can charge it [by] 25 per cent in just 10 minutes, which is great. We've also got Sony imagers in the ME and Pro. And I love the dual-SIM as well.

Feature

»Top ten phones you've never heard of



ZTE Nubia Z9

Does Samsung have a rival in the full bleed stakes?

Nubia is an offshoot of ZTE, the company that made the much-heralded Blade S6. The Nubia Z9 has got the Samsung Galaxy S6 Edge firmly in its sights as its main competitor. This is because the attraction of the Z9 is a multi-purpose dual-edge screen, similar to the S6, but with a difference.

Critics of the S6 Edge's fancy feature say that there aren't many things you can do with its edge, beyond swiping up your favourite apps and seeing who's calling you when it's face down. However, the Nubia has rectified that by making both sides of its dual-edge display extremely customisable. A swipe can do anything from dimming the screen to switching between apps. A firm press can lock or unlock your handset and you can also use it to take a photo. What's more, you can set a particular app to be launched when you swipe up one side, so if you regularly find yourself opening up WhatsApp then you can set this as your default quick-access app. Both edges are really responsive too, so you are getting a product with a headline feature that works really well. Although the main selling and talking point of the

Z9 is its multi-purpose dual-edge display, it's worth noting that the rest of the specifications point towards a very good handset. The standard version comes with 3GB RAM, 32GB storage, a Qualcomm Snapdragon 810 processor and a 1080p 5.2-inch display.

These are specifications that will stand up to any mid-range rival and it's also knocking on the door of its big name rivals.

The Z9 is well-designed and full of the same kind of features that made the S6 one of our favourite phones of last year. There is a wide range of things that you can do with the Z9's edge, making it a really solid alternative to the Samsung Galaxy S6 Edge. Although it does concede many points to its South Korean rival in terms of greater specifications, it still stands up fairly well and it's well worth considering if you love Samsung's dual-edge display offering, but would like the flexibility to do more with it.

"It's also knocking on the door of its big name rivals"

Technical specs

- »Operating System..... Android 5.0.1 Lollipop
- »Processor..... Qualcomm Snapdragon 810 2.0GHz octa-core
- »Memory..... 32GB storage / 3GB RAM
- »Display size..... 5.2-inch
- »Display resolution..... 1080 x 1920 (424ppi)
- »Camera..... 16MP rear, 8MP front

ZTE Axon Elite

ZTE steps up from the budget section with real promise

ZTE has pushed out some excellent budget phones over the past year or so, but it is moving up a step now into the mid-range market where it will have to do battle with the bigger brands' offerings of the LG G3, HTC One (M8) and the Samsung Galaxy A5.

The headline-grabber from the Axon Elite launch was its audio technology. The phone has two audio chipsets embedded that greatly improve the sound quality. It sports a dual camera setup on the rear – with 13MP for the main shot and a 2MP camera for refocusing after the snap has been taken – and has three biometric methods of unlocking the device: fingerprint scanner, voice control and iris scan.

Inside is a Qualcomm Snapdragon 810, 2.0GHz 64-bit octa-core processor (which is right up there with the best chipsets on the market), 3GB RAM and 32GB storage that's upgradable to 128GB. The 3,000mAh battery supports quick charge 2.0 and it can also record 4K video.

The grill pattern on the top and bottom of the phone is certainly a very bold style choice ZTE has decided to go for, but if you like it then the chances are that you will love it. Although it may still be a bit busy overall for our tastes.

This really is a high-end device for around half the price of the current suite of flagships, so if you are looking for a top-quality handset at a more reasonable price from a rapidly rising manufacturer, take a look at the ZTE Axon Elite.

Technical specs

- »Operating system..... Android 5.0 Lollipop
- »Processor..... Qualcomm Snapdragon 810 2.0GHz octa-core
- »Memory..... 32GB storage / 3GB RAM (microSD up to 128GB)
- »Display size..... 5.5-inch
- »Display resolution..... 1080 x 1920 (401ppi)
- »Camera..... 13MP + 2MP rear, 8MP front



Wileyfox Swift and Storm

Get the joys of rooting your device without the danger

If you like to customise your phone way beyond what stock Android enables you to do, that means rooting and possibly damaging the device. However, that's now no longer necessary as start-up company Wileyfox has launched two phones, the Swift and the Storm, that both use CyanogenMod as their main operating system. This community-built Android fork is the most well-known of all the Android off-shoots and lets the user get incredibly creative with their phone. The key benefits are the greatly increased security and privacy settings as well as regular updates from the vast Cyanogen community. The Swift and Storm also run Qualcomm Snapdragon processors, 410 and 615 respectively, where as the Storm (the premium model priced at £199) uses Sony imaging sensors in its 20MP rear camera. They're both competitively priced (the Swift coming in at £129) and could really shake up the market if Wileyfox is able to convince the non-modding community that CyanogenMod isn't a scary OS only used by tech enthusiasts. Check out our review of the Swift on page 72.



SWIFT

Technical specs

- » Operating system..... Cyanogen 12.1
- » Processor Qualcomm Snapdragon 410 1.2GHz quad-core
- » Memory..... 16GB storage / 2GB RAM (microSD up to 32GB)
- » Display size..... 5-inch
- » Display resolution..... 720 x 1280 (294ppi)
- » Camera..... 13MP rear, 5MP front



STORM

Technical specs

- » Operating system..... Cyanogen 12.1
- » Processor Qualcomm Snapdragon 615 1.5GHz quad-core
- » Memory..... 32GB storage / 3GB RAM (microSD up to 128GB)
- » Display size..... 5.5-inch
- » Display resolution..... 1080 x 1920 (400ppi)
- » Camera..... 20MP rear, 8MP front



Marshall London

Marshall turns up the pressure on the big names to 11

We aren't usually a fan of textured backs here at **Android Magazine**, but on this rocker of a phone the leather style works very well. Marshall, the legendary amp manufacturer, has brought out its first smartphone and, as you'd expect, it has put an awful lot of work into its audio offerings. It's clearly a handset that has been designed by music lovers for music lovers as it has two audio jacks, so you can use Marshall's DJ app to listen to music through your headphones and queue it up to play through a connected amp. The phone itself has fairly average specs as it sports just a 720p 4.7-inch screen, comes with 16GB internal storage and the cameras measure 8MP rear and 2MP front, but true audiophiles won't care a jot. Just as cameras on phones have reached the level of decent digital cameras due to the demand of people wanting to only carry one device, the

increase of people listening to music on their mobiles means that Marshall, with its heritage and craftsmanship, is right at the head of the queue for people wanting the best listening experience on their phone. Whether you are happy to pay the £399 for that experience is up to you as there are much better phones out there.

Technical specs

- » Operating system..... Android Lollipop 5.0.2
- » Processor Qualcomm Snapdragon 410 1.2GHz quad-core
- » Memory..... 16GB storage / 2GB RAM (microSD up to 128GB)
- » Display size..... 4.7-inch
- » Display resolution..... 720 x 1280 (312ppi)
- » Camera..... 8MP rear, 2MP front

Make sure that you have found the right bargain for you and your device before heading to the checkout



WHAT IS THE CHEAPEST WAY TO BUY A PHONE?

We pit the three main ways of buying up against each other

Most of us pay for our phones in one of three ways: pay as you go, SIM only or contract and we tend to stick with what we know best, but it doesn't have to be that way. It is true that the network providers set their tariffs in a way that makes choosing between the main three options difficult from a financial perspective. The terms are often bewildering and unnecessarily complex, but if you take the time to understand what you need, you will be ahead of the game and able to make a wise choice. No sales assistant can possibly know

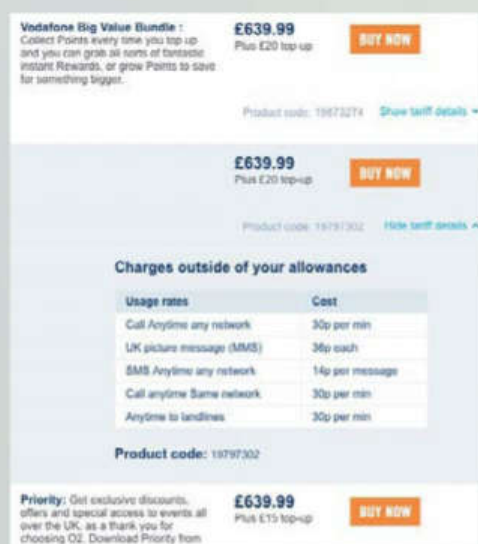
exactly what would work best for you because we each use our phones in unique ways, which is one reason why the market has exploded in recent times. Some of us prefer to speak to friends, whereas others like to text and even more prefer to use social networks and consume lots of mobile data. Even then, there are huge variances within each type of user group and this is where you come in. If you think hard about what works best for you and in particular over a longer period than one contract term, then you will be able to make a

determined choice and possibly even drive a harder bargain with your provider. Before you set about looking at pricing, make sure that the providers you are considering offer adequate coverage in all of the places you need to use your phone and then you can dismiss any that will not perform as required. A cheap phone is still poor value if it does not work, so narrow down the options, make sure you only consider those who can offer an acceptable service and then look squarely at the long-term finances.

PAY AS YOU GO

Pay as you go works well for those who want either a budget or a mid-range phone

Pay as you go is often seen as an option designed firmly for budget phones, but it has increasingly been offered for even the most expensive models, which means that you will likely pay a high upfront charge and then benefit from lower monthly charges.



Vodafone Big Value Bundle
Collect Points every time you top up and you can grab all sorts of fantastic instant Rewards, or grow Points to save for something bigger.

Product code: 19673274 [Show tariff details](#)

£639.99
Plus £20 top-up

[BUY NOW](#)

Product code: 19797302 [Hide tariff details](#)

£639.99
Plus £20 top-up

[BUY NOW](#)

Charges outside of your allowances

Usage rates	Cost
Call Anytime any network	30p per min
UK picture message (MMS)	36p each
SMS Anytime any network	14p per message
Call anytime Same network	30p per min
Anytime to landlines	30p per min

Product code: 19797302

Priority: Get exclusive discounts, offers and special access to events all over the UK, as a thank you for choosing O2. Download Priority from [www.o2.co.uk](#)





£639.99
Plus £15 top-up

[BUY NOW](#)

Always check the tariff charges outside of your standard allowance

The real beauty of the system is that you are not tied to a contract and you can change at any time, but it does mean that you will pay for each call and text either individually or by purchasing add-ons. If you are able to keep a strict limit on your mobile usage, this could well be the best option because it will work out cheaper over time, but be prepared for some high penalty charges if you go past the strict limits. Our example phone, a Samsung Galaxy S6, comes in at £499 upfront plus £0.02 for text messages, £0.03 per minute for calls and £0.01 per MB of data. As you can see, the initial cost is high and the ongoing charges appear to be quite

low, but you need to look at the amount of data you normally use. For example, if you use 2GB of data per month, which is not unreasonable, you will be adding £20 per month to your bill. Throw in 50 one-minute calls and 150 text messages and your monthly spend will be £24.50; this would come to an outlay of £1,098 over 24 months. This number may sound very high, but it actually isn't in the modern mobile market because networks do an exceptional job of breaking down the charges so well that the total cost is rarely even considered. Remember, however, that with pay as you go, you can stop at any time and move to a contract if required. You can also sell your current phone and upgrade to a newer model as this will give you more flexibility in the long run. Ultimately, we feel that pay as you go suits those of you who are buying a lower-priced phone and who use their phones sparingly. It can then be the best value proposition.

-  You have excellent flexibility in terms of how much you pay each month and you only pay for what you use
-  At any point, you can change your phone and stop using the service if you wish to upgrade
-  It represents the best value when buying a budget phone that is not used all of the time
-  If you use a lot of data, the charges can quickly become excessive so you need to be sensible and restrict your usage

There are many apps designed to help you manage your data usage

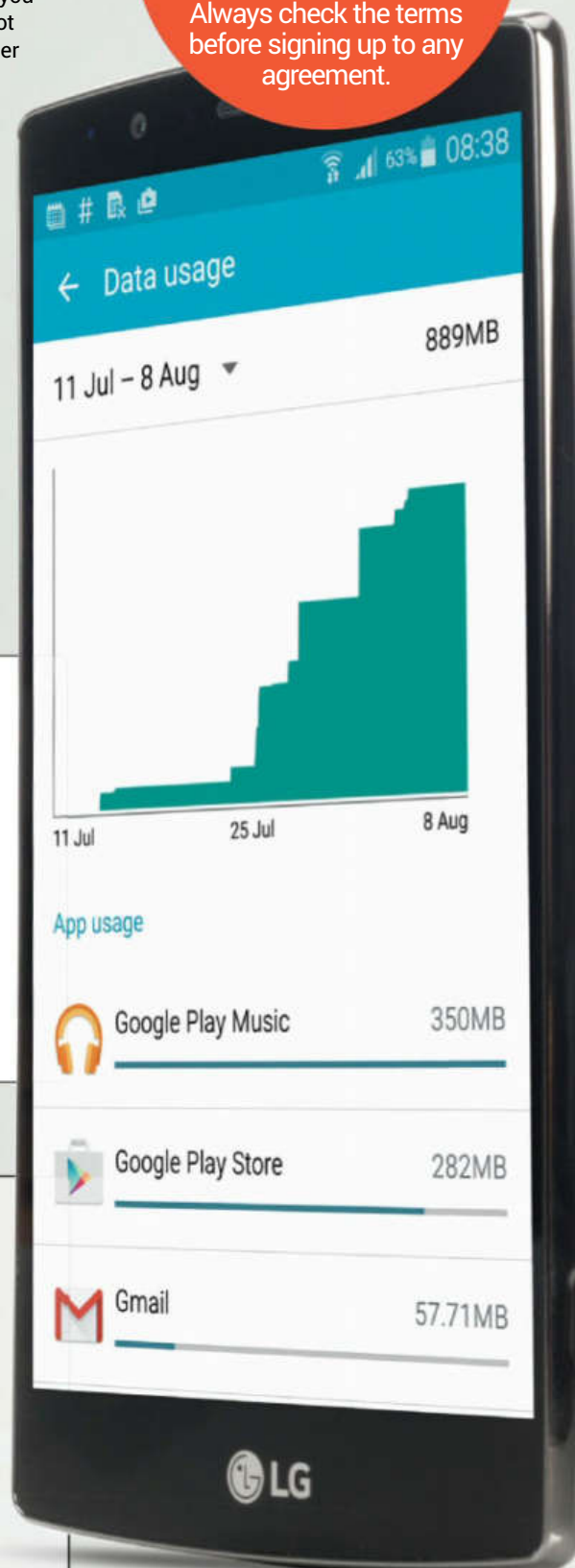
Think about your usage

For modern smartphones, there is an argument that pay as you go is the worst option of all. When you consider how you use your phone, it is likely that watching videos, streaming music and undertaking many other activities that use data will form part of your daily routine. You will not want to be constantly worrying about what you are doing every time you pick up your phone – this can greatly reduce your enjoyment and take away

the main reason you bought it in the first place. With a pay-as-you-go phone though, you do have the option to swap to a SIM-only package at any point because you have already bought the phone and are not tied to a contract in any way. Think of this system as an option that is mainly suited for calls and texts, one that is not wholly suitable for modern mobile data usage.

Expert tip Pay-as-you-go tariff limitations

Some pay-as-you-go tariffs are limited both in their ability to be used abroad and be tethered to a tablet or laptop. Always check the terms before signing up to any agreement.



CONTRACT

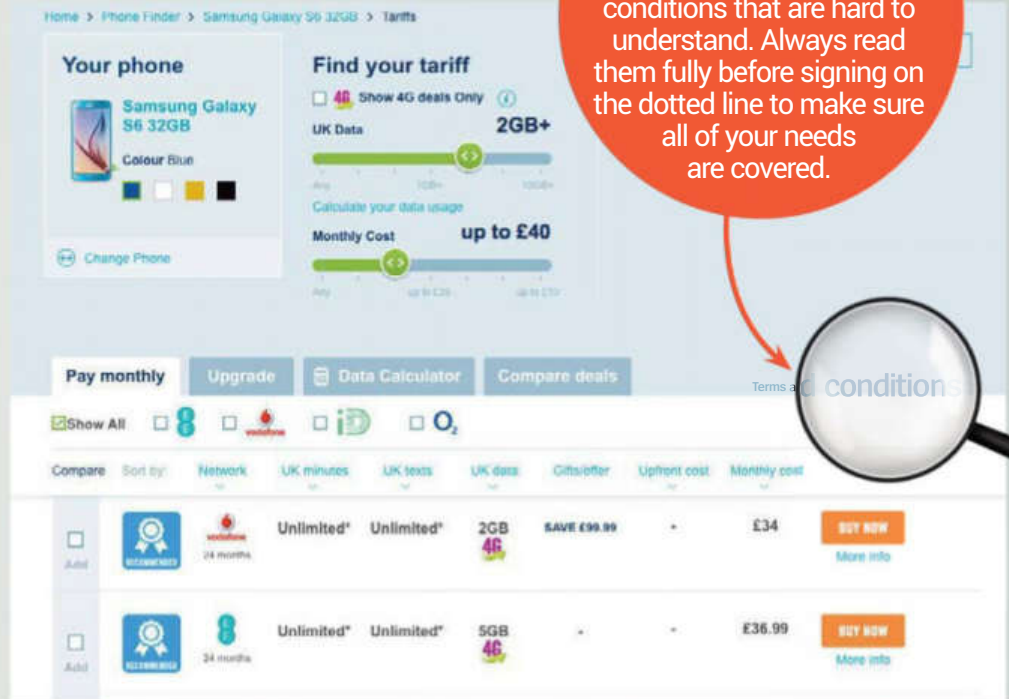
Spread the cost of your phone over longer periods

As high-end phones have become more expensive, so has the popularity of contracts that in effect let you spread the cost of the phone over a set period. It is no different to taking a loan for your new device because the monthly cost will be higher in order for the network provider to recoup their costs. This can cause confusion because you are given allowances each month that take up some of your bill and the rest is made up from the hardware cost, with the actual charges rarely being made clear. Our example Galaxy S6 can be bought for £29.99 upfront with a monthly charge of £31.99 over 24 months; this includes a generous 5GB of data per month and unlimited calls and texts. The overall total comes to £797.75, which compares favourably to the pay-as-you-go option when used heavily. You then need to consider that you will be keeping money in your bank account longer because there is no high upfront cost. The calculations soon become confusing at best. You will also be able to use your phone without the worry of busting the usage limits and a fixed amount will be paid each month so you always know where you are – but there is one restriction. You will be tied into the contract term for usually 24 months and you cannot break this under normal circumstances, so be prepared to pay the monthly amount for the entire agreement. Some providers are starting to offer contracts where you pay one amount for the usage and another for the phone. This can offer more flexibility with upgrading, but for most people a contract remains the preferred option if flexibility and high usage are most important. Just like we said about sales assistants, we cannot possibly know if a contract would work for you, but if you are likely to keep your phone for the whole contract term and have no need to change, then it can work out at being very cost effective. If 24 months sounds like a reasonable period to keep the same phone, you should consider the contract route as good value for money.

Expert tip

Read the terms

Almost all mobile contracts come with terms and conditions that are hard to understand. Always read them fully before signing on the dotted line to make sure all of your needs are covered.



Some sites provide tools to help you narrow down the options

The default option?

If you walk into a network provider's store, contracts tend to be the preferred option because they offer many benefits to the network. They force loyalty over the contract term and ensure generous monthly revenue, plus the phone manufacturers often receive more money over time. As you can see, all of these benefits are not heading your way and this is why you need to tick some boxes

before signing up to a deal. Make sure that you are certain a contract is the best option for you and do not be swayed by anyone else, no matter how much of an expert they profess to be. The mobile industry is built on long-term contracts and they do work well for many, but just because the networks like to think of it as the default option, that does not mean you should as well.



You will have generous call, text and data limits so you can stop worrying about your phone usage



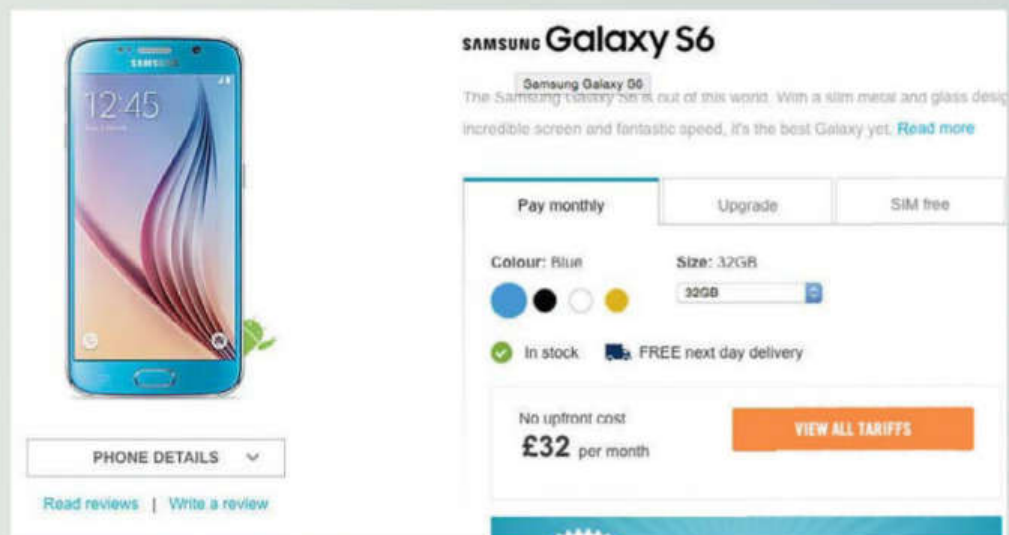
There is rarely a high upfront charge meaning you will pay for the phone over a longer period of time



Contracts are often the best option to gain access to the latest devices before anyone else



You are tied into the agreement term, which can be as high as 24 months so consider this option carefully



You can often get the newest phones and exclusive options only on contract

SIM only

A SIM-only contract can actually work best for the majority of users

SIM-only contracts have until recently been quite difficult to find, but the mobile networks are now realising that some people want to buy their phones off contract and still benefit from a fixed monthly fee. You would be best to consider SIM only as a halfway house between a full contract and pay as you go. It offers flexibility in terms of your usage and a low monthly tariff charge, but there is still a high upfront cost and, for some SIM-only deals, a term to deal with. Our example Galaxy S6 can be bought outright from as little as £329, at the time of writing, and a SIM plan is available from £19.80 per month, which includes 4GB of data, unlimited minutes and unlimited texts. The total comes to £804.20 over 24 months, quite a saving over pay as you go and standard contracts, which means that for anyone who wants a high-end phone, the pay-as-you-go option could be set aside if high usage is expected. This SIM-only plan is set to 12

months, but many only have 30-day terms, this gives you the flexibility to change plans whenever you like while still benefiting from generous usage allowances. Indeed, the SIM-only plan actually works out well no matter what type of phone you are purchasing. With some time spent shopping around, you are likely to be able to purchase a phone for less than the upfront pay-as-you-go price and you can then either choose a SIM-only plan or a pay-as-you-go SIM card. SIM only also makes your future options much easier and will let you swap phones at any time, but please remember the upfront cost. No matter how hard we calculate the merits of each phone plan, we always come back to the fact that knowledge is key when deciding what to sign up for. There is little doubt that a SIM-only plan offers the best value, but if you do not have the funds to buy a high-end device outright or you want to spread the costs, a contract may be more suitable.



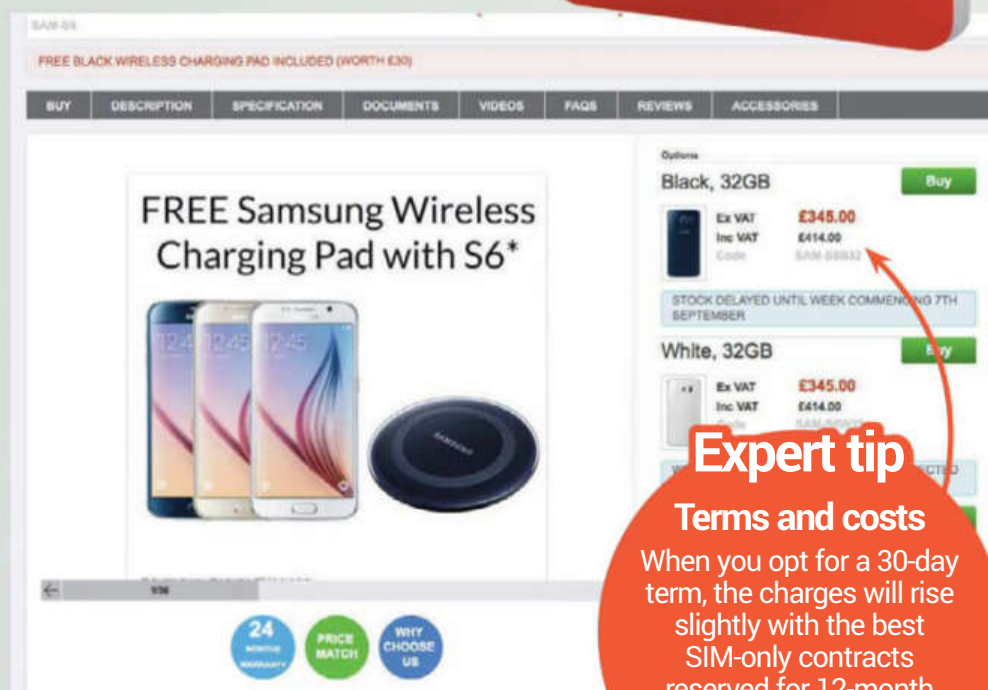
😊 Lower monthly charges are a feature of SIM-only contracts because the phone cost is not included

😊 You have great flexibility in terms of the usage allowances and can use your phone any way you like

😊 Upgrade to the latest device at any time and carry on using your main SIM-only contract

😞 A high upfront cost may be present as you are buying the phone outright without a network subsidy

A SIM-only phone stops a provider from branding the software and including unnecessary apps you don't want



When you buy a phone off contract, you can choose any provider you like

Expert tip

Terms and costs

When you opt for a 30-day term, the charges will rise slightly with the best SIM-only contracts reserved for 12-month deals. Do your calculations and make a financially informed choice.

Cheapest option

SIM-only contracts have historically been considered to be most suitable for those who have a desire to constantly upgrade their phone to the latest model. This, however, should not be the case today because, as we have demonstrated, the plans can actually save you money when compared to pay as you go or a standard contract. Ultimately, this means that a SIM-only contract should be considered by anyone who has the funds to

buy a phone upfront because it frees them from the network provider and offers greater choice over what phone to buy and when. If the network provider is not supplying the phone, they have no way to dictate terms to you and so you are the one who is merely paying them to use the network how you see fit, which can't be a bad thing. Also, a 30-day SIM-only deal usually requires no credit check as well as offering such great flexibility.

**SUBSCRIBE
AND**

SAVE 30%



**PAY
ONLY £21
EVERY 6
ISSUES**



**Order hotline
0844 245 6963**

**Online at
www.imaginesubs.co.uk/and**

Calls will cost 7p per minute plus your telephone company's access charge

Every issue packed with...

» Step-by-step masterclasses
Top tutorials to get more out of your device

» Incredible hacks
Pro tips for superusers with rooted Droids

» In-depth reviews
Buying advice for the latest Android phones, tablets, accessories and apps

» News & features
Insightful coverage of the most exciting Android announcements

Why you should subscribe...

» Save 30% off the cover price
– £21 every 6 issues on Direct Debit

» FREE delivery direct
to your door

» Never miss an issue

Order by

30 NOVEMBER 2015

Use code **PS15** for this offer.

BY POST

Send your completed form to:
Android Magazine Subscriptions, 800 Guillat Avenue,
Kent Science Park, Sittingbourne, Kent ME9 8GU

YOUR DETAILS

Title _____ First name _____
Surname _____
Address _____

Postcode _____ Country _____
Telephone number _____
Mobile number _____
Email address _____

DIRECT DEBIT PAYMENT

☐ UK Direct Debit Payment

I will pay just £21 every 6 issues (save 30%)

ip IMAGINE PUBLISHING		Instruction to your Bank or Building Society to pay by Direct Debit		DIRECT Debit	
<small>Please fill in the form and send it to: Imagine Publishing Limited, 800 Guillat Avenue, Kent Science Park, Sittingbourne, Kent, ME9 8GU</small>					
<small>Name and full postal address of your Bank or Building Society</small>				<small>Originator's Identification Number</small>	
<small>To: The Manager Bank/Building Society</small>				5 0 1 8 8 4	
<small>Address</small>				<small>Reference Number</small>	
<small>Postcode</small>					
<small>Name(s) of account holder(s)</small>				<small>Instructions to your Bank or Building Society</small>	
<small>Branch sort code</small>				<small>Please pay Imagine Publishing Limited Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit guarantee. I understand that this instruction may remain with Imagine Publishing Limited and, if so, details will be passed on electronically to my Bank/Building Society</small>	
<small>Bank/Building Society account number</small>				<small>Signature(s)</small>	
				<small>Date</small>	
<small>Banks and Building Societies may not accept Direct Debit instructions for some types of account</small>					

PAYMENT DETAILS

YOUR EXCLUSIVE READER PRICE, 1 YEAR (13 ISSUES)

☐ UK £51.90 (Save 20%) ☐ Europe – £65.00
☐ World – £75.00 ☐ USA – £75.00

Cheque

☐ I enclose a cheque for £ _____
(made payable to Imagine Publishing Ltd)

Credit/Debit Card

☐ Visa ☐ Mastercard ☐ Amex ☐ Maestro

Card number

Expiry date

Issue number ☐ (if Maestro)

Signed _____

Date _____

Please tick if you do not wish to receive any promotional material from Imagine Publishing Ltd by post ☐
by telephone ☐ via email ☐

Please tick if you do not wish to receive any promotional material from other companies by post ☐
by telephone ☐ Please tick if you DO wish to receive such information via email ☐

TERMS & CONDITIONS

This offer entitles new UK direct debit subscribers to pay only £21 every 6 issues. New subscriptions will start from the next available issue. Offer code PS15 must be quoted to receive this special subscription price. Details of the Direct Debit Guarantee are available on request. This offer 30 November 2015. Imagine Publishing reserves the right to limit this type of offer to one per household. Subscribers can cancel this subscription at any time.



Lockscreen upgrades

The best apps for making your lockscreen more useful

You might think of your lockscreen as a barrier to your mobile, something to stop people looking at your private information.

However, there is a wealth of apps and customisation options that can make your lockscreen a valuable part of your experience. There is enormous potential to customise and add extras to your front-line of security so that your first interaction is an enjoyable one.

If you want to make it beautiful, you can add ever-changing pictures, keeping it fresh

and full of variety. If you want to make it functional, there are apps that can be laid over your password or PIN code so that you can perform basic tasks that won't compromise your security. This enables tasks to be completed quicker than if you had to unlock your handset. Also, let's not forget added levels of security. To help you out, we've found the best apps and in-built features to make your lockscreen a fully functioning part of your phone.

Top security tips

How to make sure your security settings actually work

Make random passwords

Never make your password personal. Make it a random combination of letters, numbers and symbols so someone who knows you can't jump into your device if you leave it unattended.

No obvious PINs

The most common PIN codes are 1234, 1111, 0000 and 1212. Avoid these and your birthday. The more common PIN codes will be easy for a hacker to guess after a few attempts.

Don't follow the pattern

The majority of lock patterns start in the top left-hand corner. This is perfectly natural, but it does give a potential hacker a headstart. Avoid starting in the corners or the centre.

Five tips for a more secure lockscreen

1. Passwords are harder to guess

The most difficult lock for a thief to break is the password. As each character is one of around 90 options, taking into consideration numbers, symbols and capital letters. A five-letter password potentially has nearly six million combinations. To keep your phone's content safe from strangers, a password is your best bet.

2. Use more than one method

Here we look at several ways of protecting your phone and data, but you don't have to pick just one. Use several methods to foil a burglar – certainly include at least one to protect your hardware and another for your data.

3. Use a PIN code

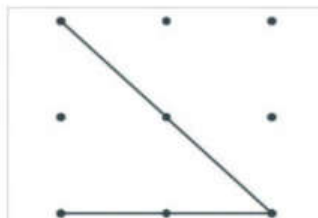
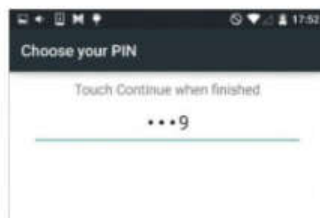
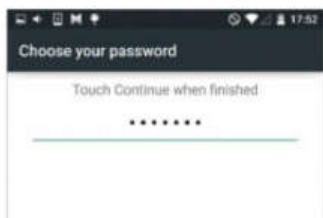
The third option for putting a barrier between your phone and the outside world is the PIN code. There are ten numbers available to you and because each of them can be reused, there are 10,000 different combinations to baffle potential hackers.

4. An elaborate picture password

Picture passwords require you to tap certain parts of the lockscreen to unlock the device. You will select a picture and draw lines, circles or tap a spot to unlock. Make this as elaborate as possible to deter random lucky tapping.

5. Avoid the swipe lock

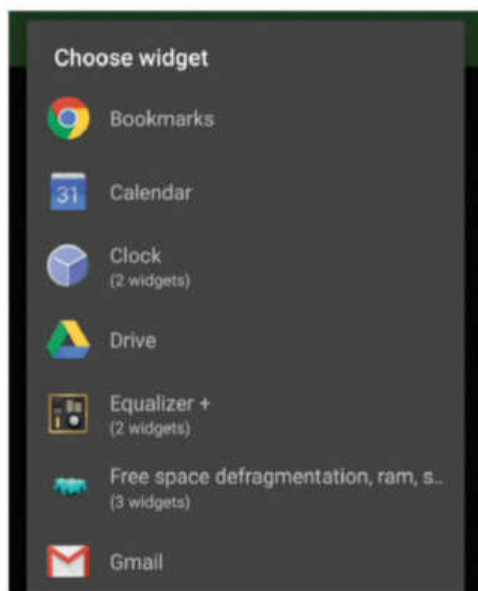
If you are on and off your Android device an awful lot, there is the swipe lock. This affords absolutely no protection whatsoever against people trying to access your phone, but at least it prevents pocket dialling.



See detailed notifications

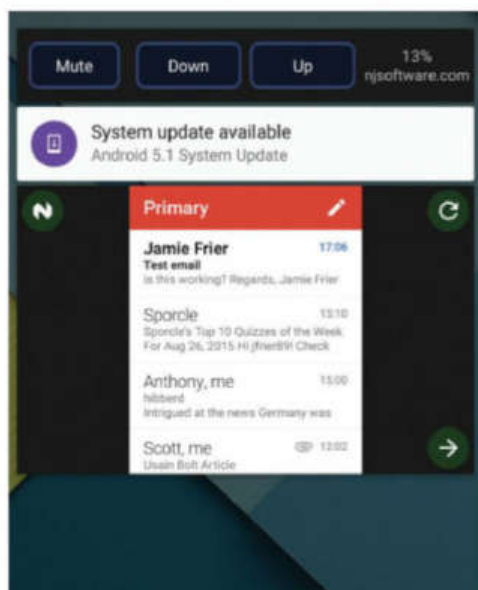
Set some apps to be accessible through a lockscreen

Sometimes you want to quickly check a notification or skip forward on a music track without going through the effort of typing in your password. Notifidgets is a great app that has an easy setup and lets you manage selected apps from in front of your lockscreen.



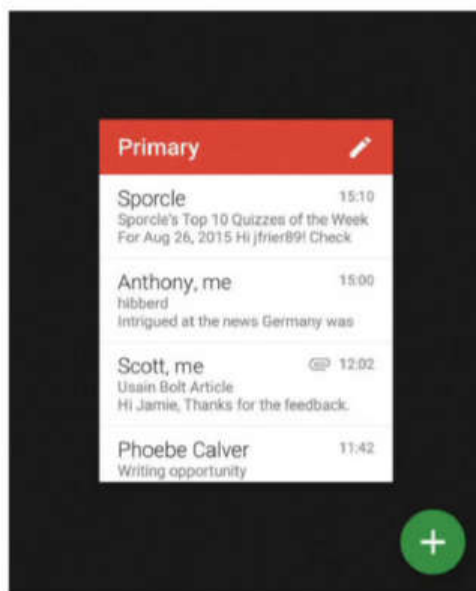
1 Choose your widgets

Download Notifidgets from the Google Play store and open it. Tap on the white plus symbol in the green circle to open the list of apps you are able to skip to. Select the app you want to access without unlocking your device.



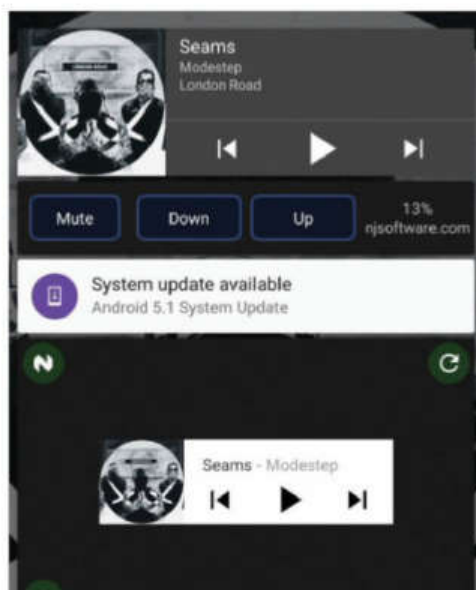
3 Look at notifications

Hit the power button and you should see a bar listing all of the apps that can now be accessed. Drag this down to reveal the app screen. From here you can see more detailed app information. Hit the arrow to see the next app.



2 Add your widget

You can select multiple widgets to appear before the lockscreen, so keep selecting the options. Press the bin icon to remove any you change your mind about. Ensure Notifidgets are on by using the slider at the top of the screen.



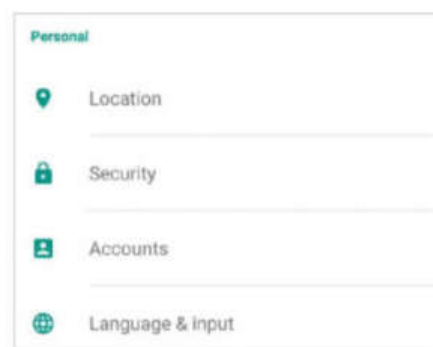
4 Play your music

One of the handiest things you can do is play, pause and skip tracks on your music player without unlocking your phone. Tapping any of the buttons brings up the music player app at the top or you can control it from the Notifidget bar itself.



How to make sure no one can jump straight into your mobile

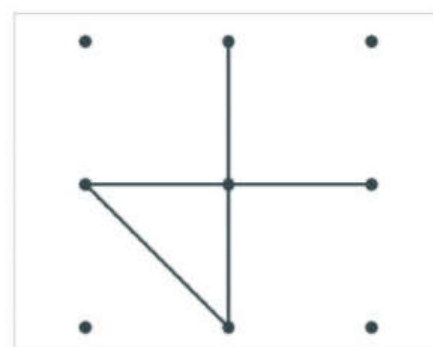
How to set up a security lock



1 To set up some kind of security code, pull down the Quick Settings menu and tap on the cog. Scroll down until you find the Security menu and tap on that.



2 At the top of the screen, you should see the Choose screen lock menu. Tap on that and you'll see the list of lock options. Choose the one you want by tapping on it.



3 Set your password, PIN code or pattern by typing or drawing. Repeat to confirm. To reverse this, go into your settings, pick something else, retype or redraw your lock.

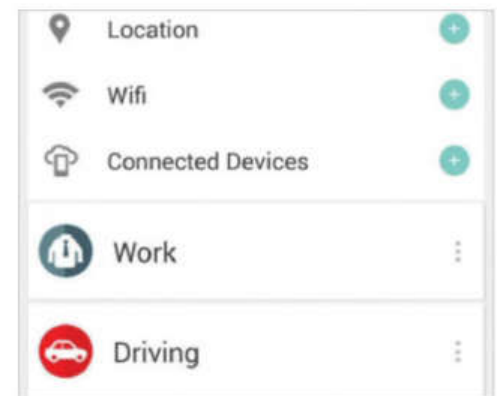
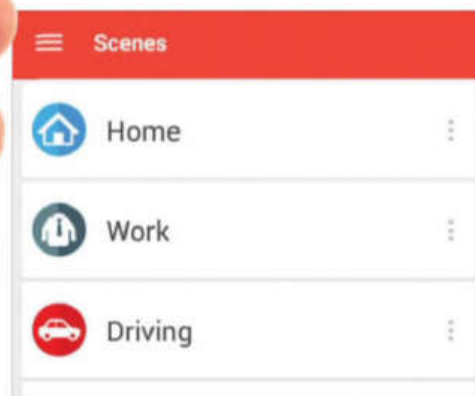
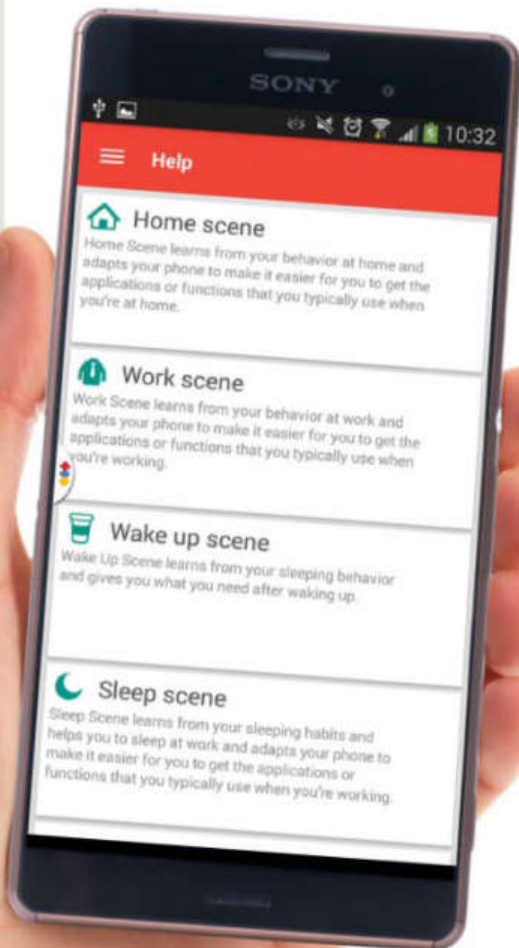
Change your lockscreen wherever you go

Use Staytuned Smart Lock Screen for easy-to-access apps in favourite locations

Even if you have set up a few apps to be accessible on the unsecured side of your lockscreen so that you can launch them quickly without inputting your lock code, you are still left with a dilemma. Do you add all the apps you may need access to at home, work or on-the-go, or do you only set

them up for a single location. Staytuned Smart Lock Screen bypasses this problem by changing the apps available to access quickly depending on your location or sleeping habits. Different apps appear when you're at work, at home or in the car, based on what apps you use most often in that location. It's not yet optimised for Lollipop and does drain the battery, but it is extremely useful.

This tutorial will demonstrate how to set up the app, save your settings, locations, timings and quickly load up your apps.

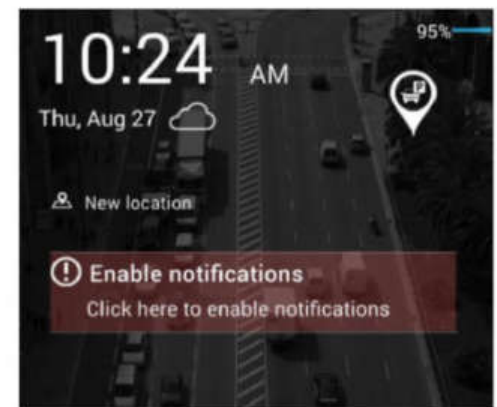
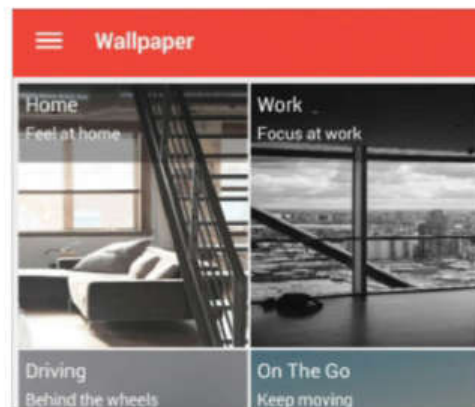
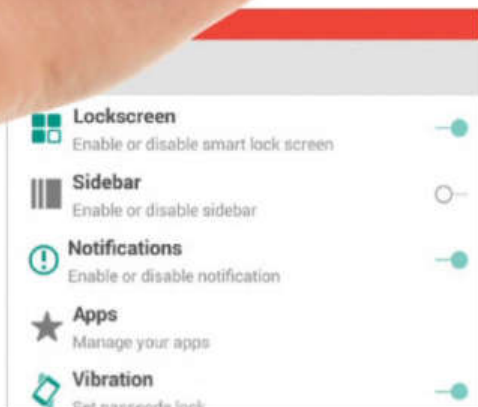


1 Start the app

Download Staytuned Smart Lock Screen from the Google Play store and open it up. You will be greeted by the app's homescreen that has all the various locations in which your lockscreen will change. Tap on any of the menus to get started.

2 Locations and timings

Having tapped on a menu, set the relevant location. As long as location settings are activated, the app will recognise when you're at home and alter the settings accordingly. Add in your waking time as well to activate your morning apps.



3 Alter your settings

Tap the three-line symbol and then tap Settings. This will open the modification options. Enabling the Sidebar will produce a pull-out menu with your quick-launch apps, while you can also add a lockscreen on top of your normal one.

4 Change your wallpaper

Staytuned Smart Lock Screen has customised wallpapers for each location or time. You can change these by tapping on the relevant section in the wallpaper part of the menu. If you are a fan of one, you can set that for everything.

5 Use your lockscreen

Press the power button to put your phone on sleep then press it again. You should now see this screen. From here you can quickly load any of the apps in your list. Over time the app will learn which you use most often and replace them here.

Message us!
Got a top tip to keep your
Android safe? Let us know!



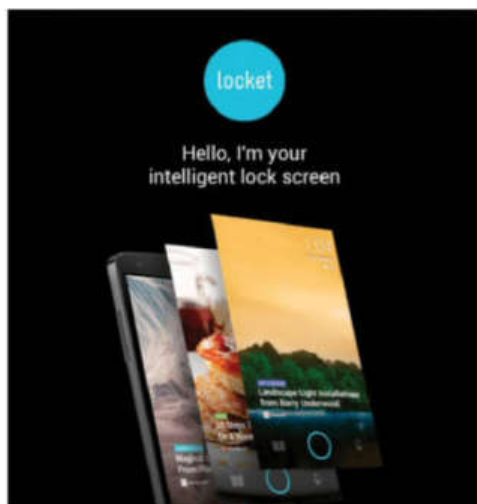
» masterclass
Lockscreen upgrades

Turn your lockscreen into a magazine

Use the Locket Lock Screen app to read the news that matters to you

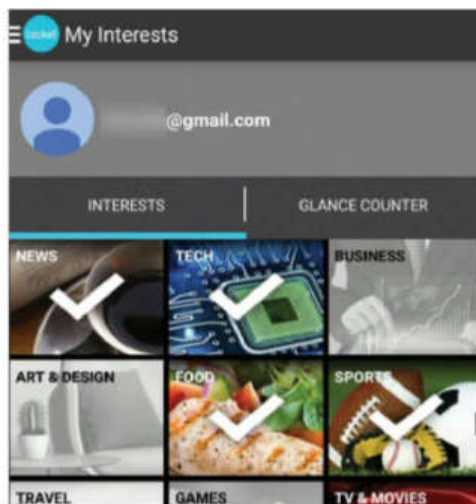
Sometimes you want to read the news, but you don't want the hassle of unlocking your phone in a public place. Step forward Locket, the handy app that lets you select what news you are interested in and then drags it onto your lockscreen. It's useful as it gives you information on the go, but keeps your mobile secure.

You can select which topics you are interested in, scroll through stories, read them or save them for later. This tutorial will show you how to do all of the above to help make your lockscreen a much more entertaining and useful part of your phone.



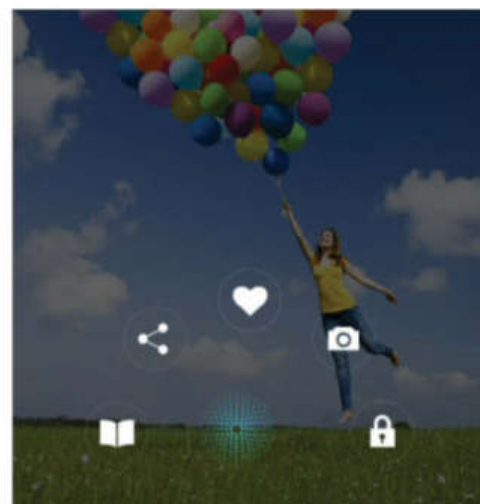
1 Set it up

After downloading Locket Lock Screen from the Google Play store, you will be greeted with the homescreen. It will prompt you to log in with Facebook or Google, which you can do with a single tap if you're already logged in on those services.



2 Select your preferences

The Locket Lock Screen app gives you a range of options for your areas of interest. Tick all the topics that you think you would like to read about. You have to tick at least five, but can also tick as many as you like.



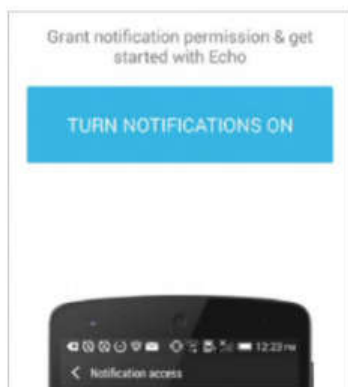
3 Enjoy your lockscreen

Tap the bottom button to bring up five options: the book takes you to a list of stories, the share icon lets you send them via social media, the heart saves stories, the camera and padlock load your camera and homescreen respectively.



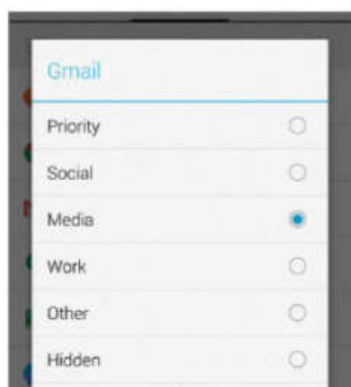
Customise notifications with Echo

Use the simple tools in Echo Notification Lockscreen to manage which notifications you see regularly



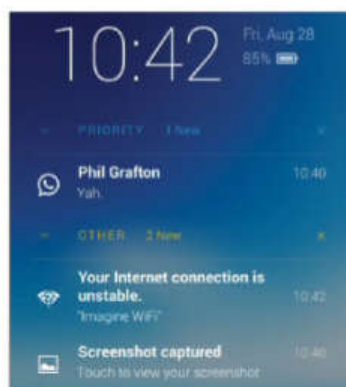
1 Activate the app

Download Echo Notification Lockscreen from the Play store and open it up. It will prompt you to give it access to your notifications. Check the box that appears after you click on the Turn Notifications On button to activate the app.



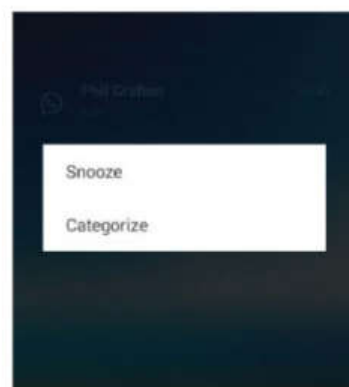
2 Customise alerts

Tap on Notification Groups. This will show you a list of all the apps that are set to appear normally, as a priority or even not appear at all. Tap on a particular app and you can then alter its status to any of the available categories.



3 Collapse alerts

You have now customised your lockscreen to see notifications as and when you desire. Tap on each category to open up a list. Tap again to collapse them if you want them to stay on the lockscreen, but not remove them entirely.



4 Snooze

If you want to stop certain notifications coming through, tap and hold the text. This will bring up the option to Snooze alerts from this particular app, say if a group chat is getting annoying or re-categorise them quickly and easily.

Apps used >> Songie Works with >> Android 4.0.3 and up

Identify your songs with Songie

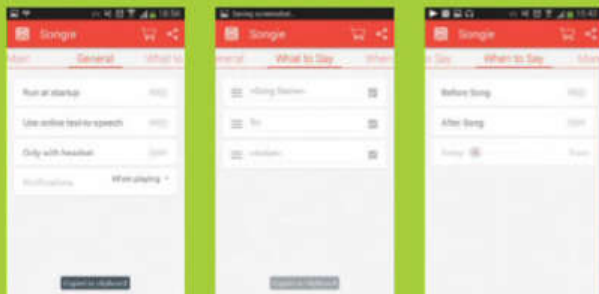
Use this lightweight app to announce each upcoming song on your playlist

Songie is an app that tells you what song is about to start playing and who the artist is. It uses the native text-to-speech function on your Android phone to relay this information audibly, so that the app itself doesn't take up too much storage space. It supports a large number of music playing apps, including Google Play Music and Spotify. It's a pretty basic app, but it can be very handy to have running in the background when you want to know what each track is called before it plays, consequently, removing those frustrating four minutes of wracking your brain. This tutorial will show you what you can get from the app as well as the features you will find in the fully paid-for version.

"It supports a large number of music playing apps, including Google Play Music"

Full version

What else can you do on Songie if you pay the extra cash to unlock all of the features?



Automatic start
If you want to use Songie in the free version, you will have to manually launch the app every time you start playing music through your phone. The general settings on the full-feature version will automatically start the app working as soon as music begins to play.

What to say
You are also able to customise what information Songie will provide you with before each song plays. Tick the boxes in settings, which offer the choice to hear the song name and who the artist is, or untick a box to hear just one of these options.

When to say
The app is automatically set up to tell you the name of the song and the artist before the music begins. However, if you pay for the full version, then you can decide if you want to hear the information at the start of the song, at the end or maybe even both.

Supporting players

As well as Google Play Music and Spotify, Songie supports Samsung Music, LG Music, Sony Music, Poweramp, PlayerPro, 8tracks, doubleTwist, Shuttle Music Player, Rocket Player, n7player and Rhapsody. More are being added with every update so you should be able to find a supported music player

Name that song

As well as announcing the name of the song you're about to listen to, Songie displays the song title and the artist at the top of your screen. However, this function can only be seen if the screen is on and it will only flash up for a second

Share

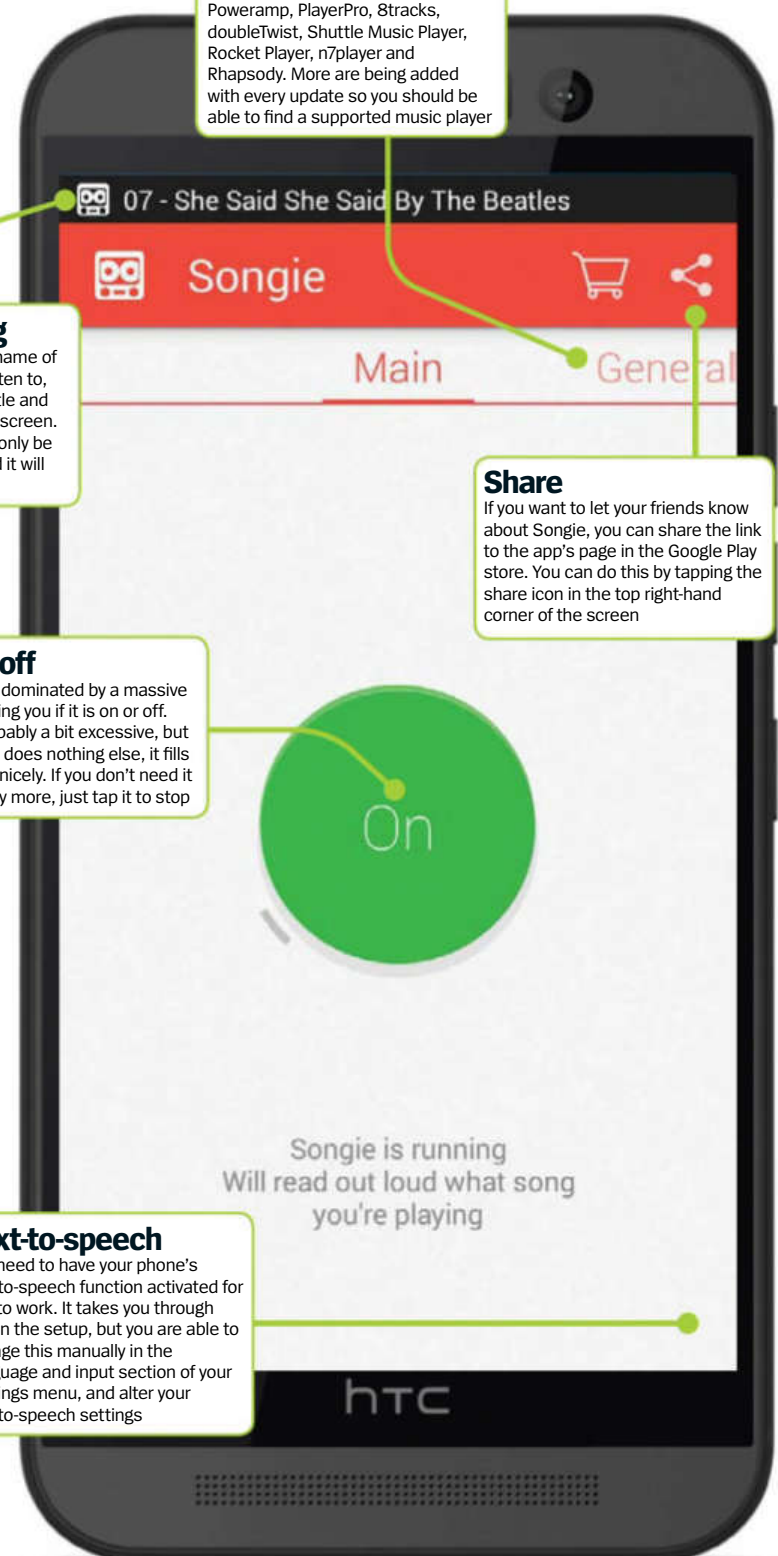
If you want to let your friends know about Songie, you can share the link to the app's page in the Google Play store. You can do this by tapping the share icon in the top right-hand corner of the screen

On or off

The app is dominated by a massive button telling you if it is on or off. This is probably a bit excessive, but as the app does nothing else, it fills the space nicely. If you don't need it running any more, just tap it to stop

Text-to-speech

You need to have your phone's text-to-speech function activated for this to work. It takes you through this in the setup, but you are able to change this manually in the Language and input section of your Settings menu, and alter your text-to-speech settings



Never miss an alert with Glimpse Notifications

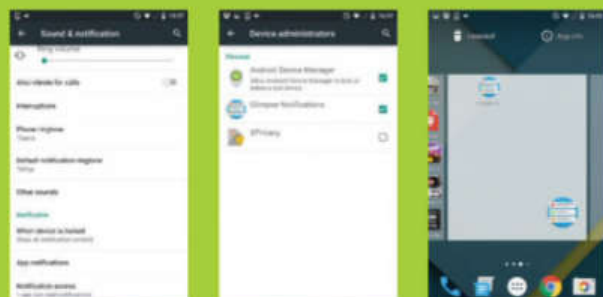
Keep on top of your notifications by letting Glimpse Notifications light up your screen

Many apps alert you when a notification arrives, but they don't light up your screen. Glimpse Notifications puts an end to this by automatically turning on your homescreen so that you can see, with just a glance, if you have a text, an email or even a WhatsApp message. It is a simple, nonintrusive app that requires a couple of minor permissions in order to save you the hassle of unlocking your phone to discover that all you've received is an alert telling you what other people are tweeting about. This tutorial will show you what each of the app's settings can do and how you can optimise them to do exactly what you want, such as not turning on at certain times or ignoring particularly uninteresting notifications.

“Glimpse puts an end to this”

How to disable Glimpse Notifications

If you want to get rid of the app, you have to make sure you have done it properly by first going through several steps. Here's how...



Remove the notification access

Go into your Settings menu and tap Sound & notification. Scroll all the way down to the bottom where you will find Notification access. Tap on this and you'll see Glimpse Notifications. Uncheck this box to disable the app's access.

Disable device administrators

Head back to your Settings menu and scroll down to Security. Tap on the Device administrators submenu, where you should see all the apps that can alter the settings of your handset. Uncheck the box found next to Glimpse Notifications.

Uninstall Glimpse Notifications

Now you have removed all the permissions for the app, you should now be able to uninstall it from your phone. Tap and hold the app. You should see the uninstall option appear at the top of the screen. Drag it there and then release.

Pocket Mode

It is a waste of time to have your phone turn the screen on while it's still in your pocket, so Glimpse Notifications has a setting that you can enable to keep the phone off if it detects that it's in your pocket

Enable Quiet Time

Sometimes you don't want to have the screen turn on, but neither do you want to disable the app entirely. Slide the toggle to enable Quiet Time mode and then select the time parameters between which you don't want your screen to light up

Grant the app notification access

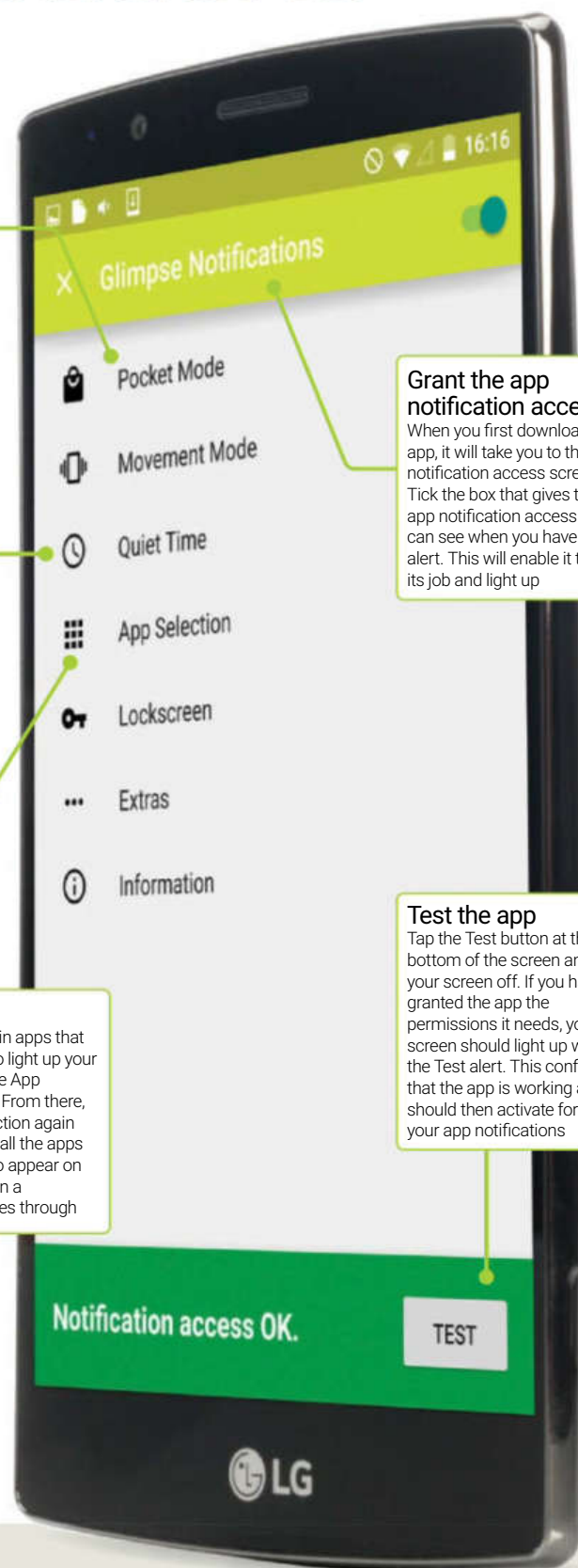
When you first download the app, it will take you to the notification access screen. Tick the box that gives the app notification access so it can see when you have an alert. This will enable it to do its job and light up

Block apps

If there are certain apps that you don't want to light up your screen, select the App Selection menu. From there, tap on App Selection again before checking all the apps you don't want to appear on your screen when a notification comes through

Test the app

Tap the Test button at the bottom of the screen and turn your screen off. If you have granted the app the permissions it needs, your screen should light up with the Test alert. This confirms that the app is working and it should then activate for all of your app notifications

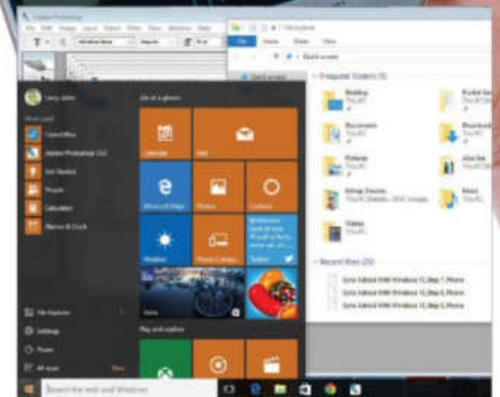
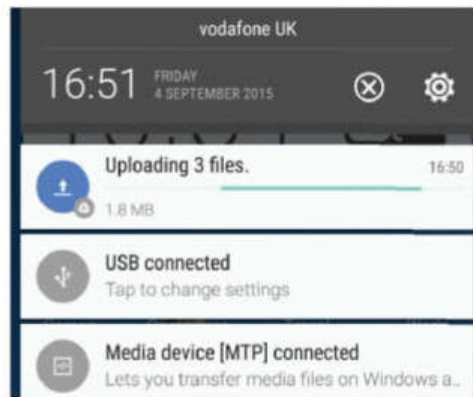
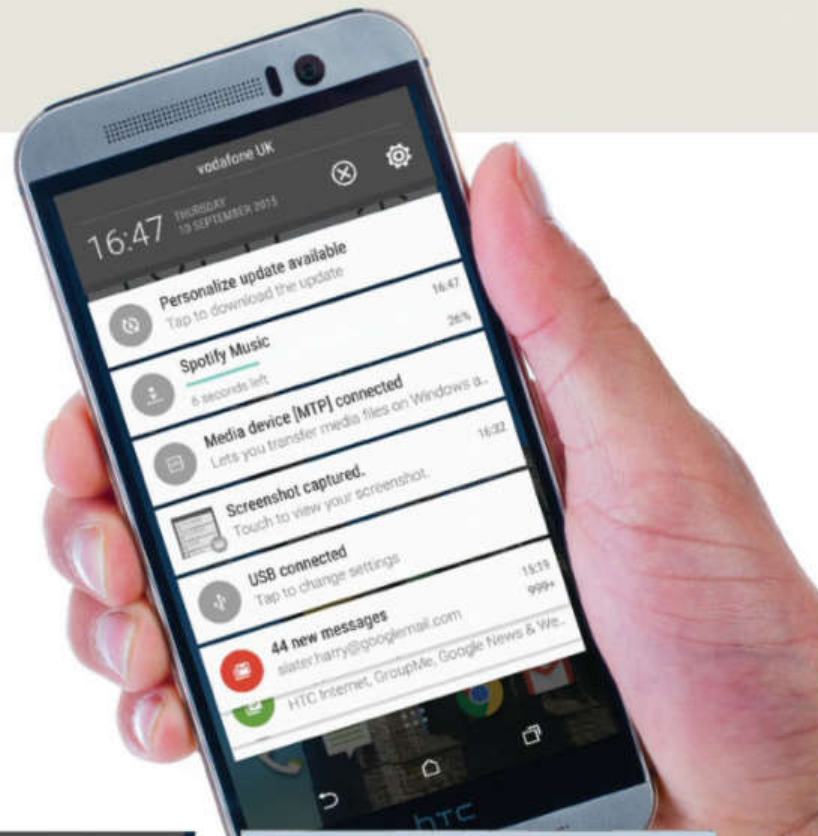


App used >> Dropbox Works with >> Android 4.0.3 and up

How to sync Android with Windows 10

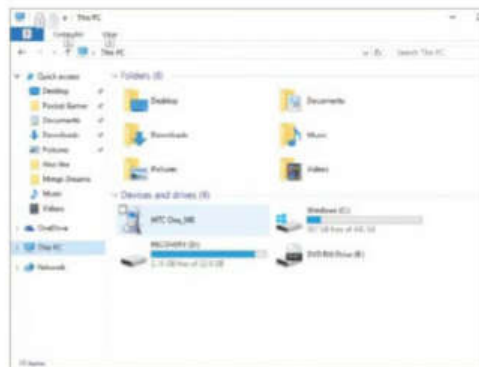
A tutorial to show you how to connect your Android phone with the latest version of Microsoft's operating system, taking away the headache of figuring it out alone

Windows 10 is out, it's free and it's also pretty good. But a new operating system for your PC always comes with some headaches, especially when it comes to connecting and syncing your mobile phone. That's not to say that there's anything particularly fiddly in the process or that you're going to get stumped by any of the steps, but knowing exactly what you need to do is going to help you out a lot when it's time to stick in that USB cable. We're going to focus on manual syncing mainly, so there's nothing special to download. All you'll need is your Android device, a USB cable and a PC with Windows 10 installed. The actual process of getting connected isn't going to take you too long, but if you've yet to upgrade your PC to Windows 10 then you'll need a couple of hours to get it up and running. Since we're syncing manually, you will also need a while to select what to move across to your computer.

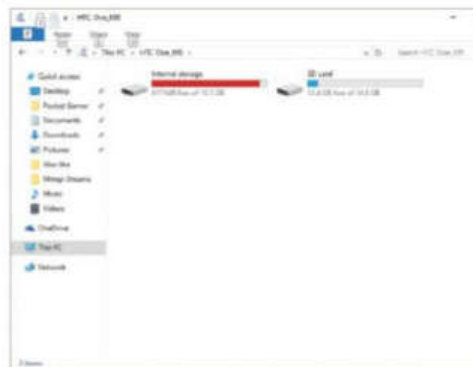


1 Hook it up
First you'll need to connect your device to your PC. The best way to do this is with the USB cable that came in the box with your device. It's not essential, but Android devices can get a bit annoyed if they're not being treated well. Once it's plugged in, get your PC.

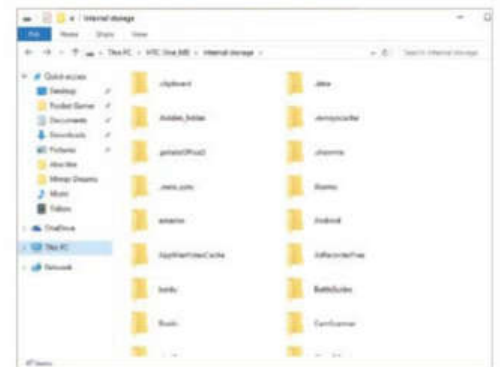
2 Open File Explorer
On your PC, open up File Explorer. You do this by hitting the Windows key where you'll find File Explorer just above Settings near the bottom of the screen. When it opens, click on the option marked This PC in the sidebar on the right-hand side of the window.



3 Look at the list
In the devices and drivers section at the bottom of the list, you should see your phone. Double click it to access the files. It might take a while for the computer to recognise everything on your phone and SD card, so if it doesn't work the first time, try again.



4 Choose a destination
Choose the storage option you'd like to sync. Most phones that haven't been played around with will store photos and other files on the internal memory, but you'll be able to tell where the majority of your stuff is by seeing whether the SD card or the memory is the most full.



5 The file-naming system
When you click through to your choice, you'll see a lot of folders. The Android operating system's file-naming conventions aren't the easiest to understand and it can be a little frustrating to try and figure out where everything is stored. Don't worry though, we're here to help you.

1 What about Drive?

You can always use Google Drive too, but the app for Windows 10 isn't the friendliest to use.

2 Live in the cloud

If you'd rather back up to the cloud, then Dropbox, OneDrive, and Google Drive are suitable.

3 Sync regularly

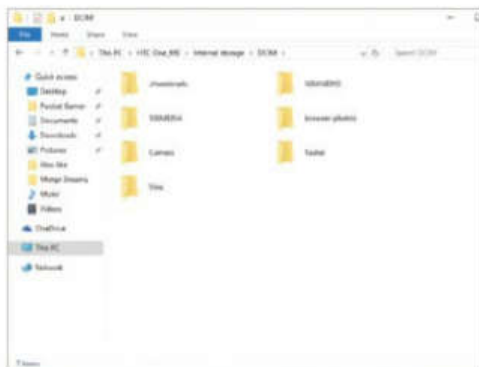
If you're running out of storage a lot, it would be a good idea to back up and clear out your content regularly.

4 Charge at the same time

Your phone will charge from the USB connection, so you can power up and sync at the same time.

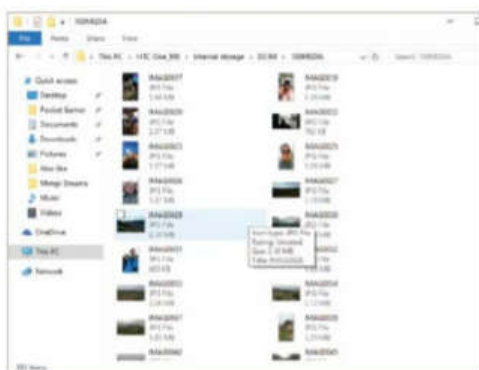
5 Don't rename things

Renaming will cause problems to the Android OS. Rename them only after you've moved them over.



6 Find the DCIM

Most of your images are going to be stored in a folder marked DCIM, although any screenshots you've taken will be somewhere else. Scroll down the list and find the folder, then double click to open it up. Most of your photos will have been stored in the 100Media folder.



7 Drag and drop

To get the files off your phone, just drag and drop them into a folder on your PC. It's probably easiest to do a bulk dump and then delete any photos you don't want to keep when you're looking through. When you've done that, head back to the previous menu.



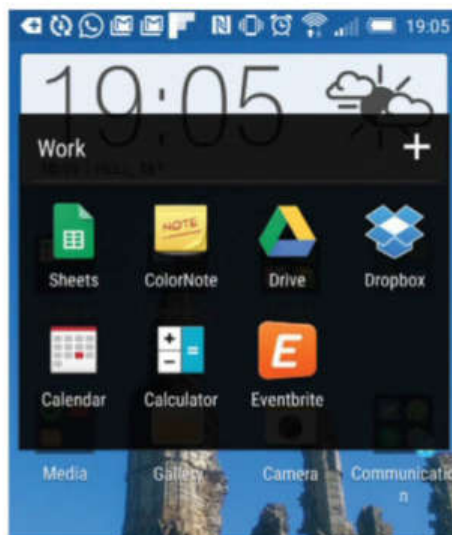
8 A bit of trouble

If you're having problems, make sure your phone is in MTP mode or something similar. This will enable it to talk to your PC and the option will flash up when you're connecting it. A quick Google search will tell you where to find other important files on your phone.



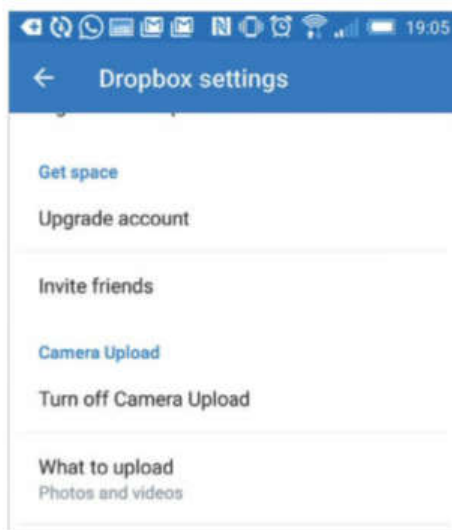
Or do it with Dropbox instead...

Instead of using a cable, you can connect your phone to your Dropbox folder and use that to sync your device



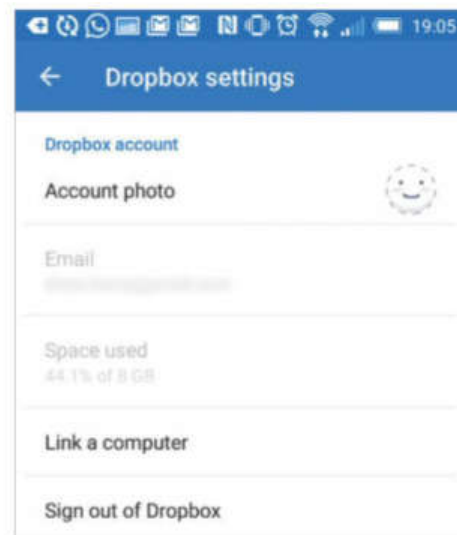
1 Download Dropbox

If you've got a Dropbox account, you can sync your videos and pictures instantly, meaning they're on your PC when you need them. To start with, download and install Dropbox on your phone or tablet. Then sign into the account you use on your Windows 10 PC.



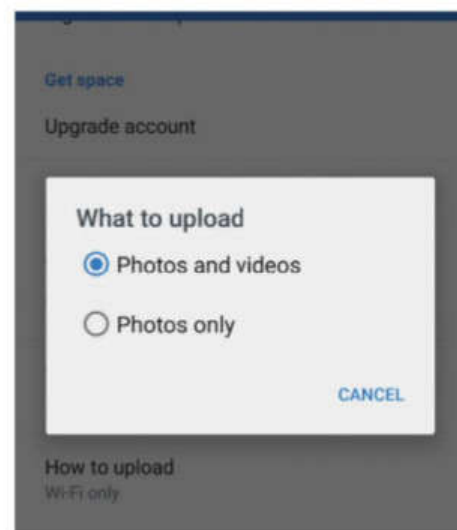
3 Turn it on

To turn on Camera Upload, tap on the first setting, this will set up Dropbox to upload your photos. There are also some options that you can tweak so you can have more control over what's uploaded and when it's uploaded. These pop up when you turn the feature on.



2 Open up the settings

Once you're all signed in, you'll need to open up the menu of the Dropbox app on your phone. Tap the menu button in the top right corner, then click on the cog in the top right of the sidebar that slides in. Scroll down the menu to find Camera Upload.



4 Make some changes

You can now select whether your phone uploads pictures and videos or just pictures alone, then set whether to use Wi-Fi or mobile data. If you don't have an unlimited data plan, it's best to select the Wi-Fi option. You can sync other files by adding them directly to the folder.

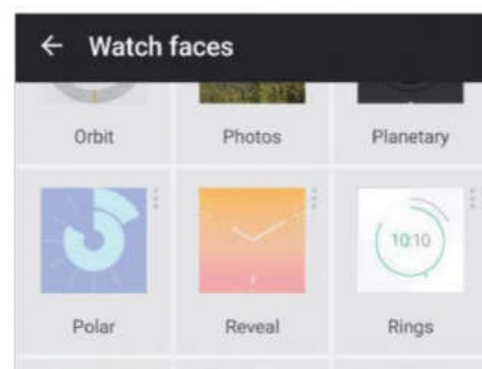
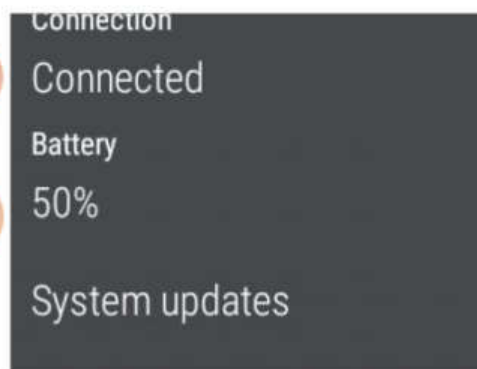
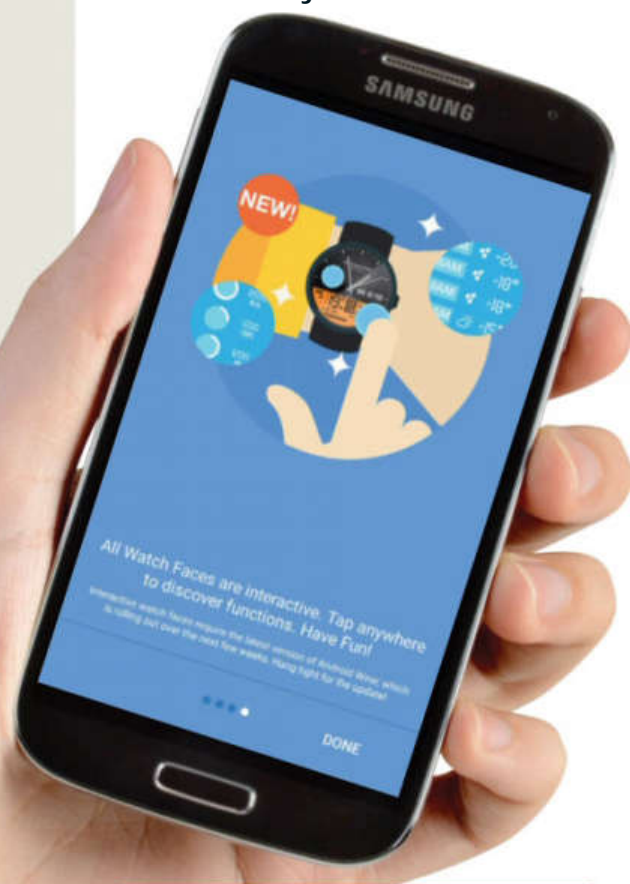
App used >> Android Wear Works with >> Android 4.3 and up

Stay connected with interactive watch faces

Your watch face can do much more than just tell the time

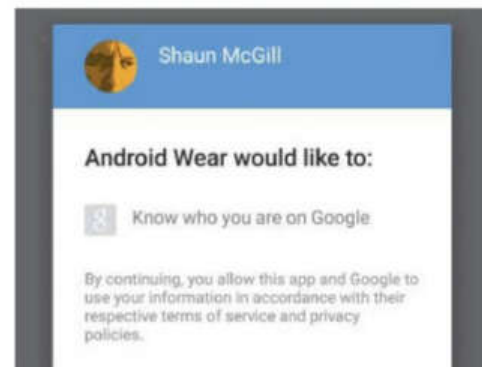
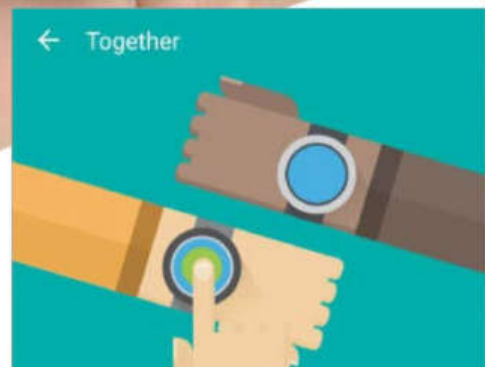
The latest version of Android Wear brings with it various improvements, but perhaps the most obvious is the inclusion of interactive watch faces. Google has included a watch face called Together in the latest update and this is designed to keep you connected in a variety of ways with one special person. It is an obvious counter to the Apple Watch. One which potentially offers more features, but you can only connect with one person so make sure you choose wisely.

Once you have set up Together, you can share emojis, send photos, sketches and stickers, or even share your most recent activities. It takes some time to get used to, in particular the way some notifications appear on your watch face, but the end result is an emotional one that grows over time and one which has the potential to develop friendships in a completely new way. If you use an Android Wear watch and someone close to you also does, you should try Together.



1 The latest update
The very first thing you should do is check that you are running the latest version of Android Wear on your device. You will need to go to Settings on your watch and then tap System updates. You need to be seeing Android 1.3 to use the new interactive watch faces.

2 Choose Together
You will now need to go to the Android Wear app on your phone and navigate to the watch faces. Scroll down until you see the Together option in the list, tap it to activate this option as your main watch face. It is a particularly simple and effective choice for daily use.



3 Follow the instructions
The next screens will take you through the setup process, which is surprisingly easy, but you do need to follow it closely. It is worth spending some time setting everything up correctly as you will likely use the features very often and you want them to work reliably.

4 Time to pair
You will eventually reach a screen that asks you to Pair With A Friend, which you will need to tap in order to proceed further. Your Google account details are used to identify you, so make sure that they are correctly recognised on both of your devices before proceeding.

5 Enable full access
Android Wear will require access to a lot of your personal Google-related information and you should not be concerned about this. If you are already using Google on your phone or tablet, you are effectively giving no extra access to your personal information on your Android Wear device.

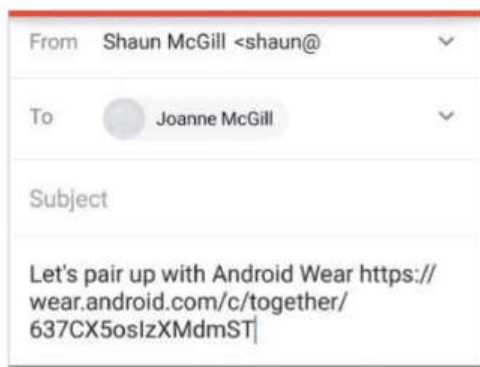
1 Try to be conservative
Try not to install too many watch faces to avoid using too much memory and battery.

2 Set up and go
Make sure you know what your requirements are before you search for a new face.

3 Be careful of pricing
Some watch faces charge by subscription, so always check the pricing before installing.

4 For the sake of it
If you are happy with the normal watch faces, there's no requirement for you to try interactive ones.

5 Save the battery
Don't enable 'Always on screen' if you want to improve the battery performance of your watch.



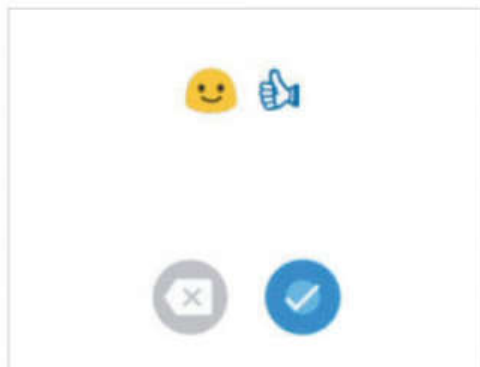
6 Send an invite

You will be asked to send an invite to the person you want to connect your device with and we would suggest to do so via email. When they accept your invitation, you will be connected to each other automatically and can then start to use all of the personal features.



7 A small change

The pairing screen within the Together watch face settings will change as soon as the invite has been accepted. This is all you need to see in order to start using Together in earnest. The connection will remain active until such a time as you choose to break it.



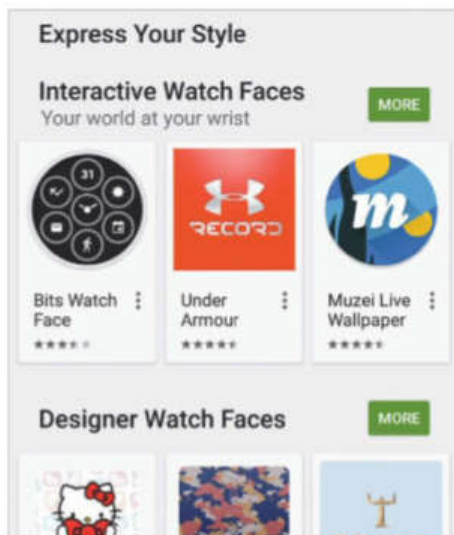
8 Time to interact

You can now send and receive emojis or sketches whenever you want to with your special contact and they will receive yours immediately. It is actually quite surprising how easy it is to make contact in new ways and to keep relationships healthy just from your wrist.



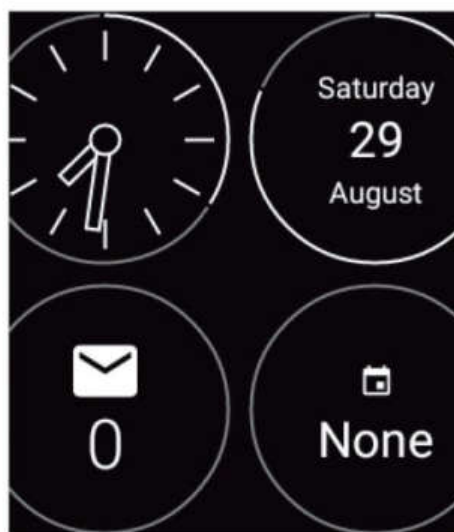
More interactive watch faces

Make the most of interactivity with the Bits Watch Face – it's free and extremely flexible



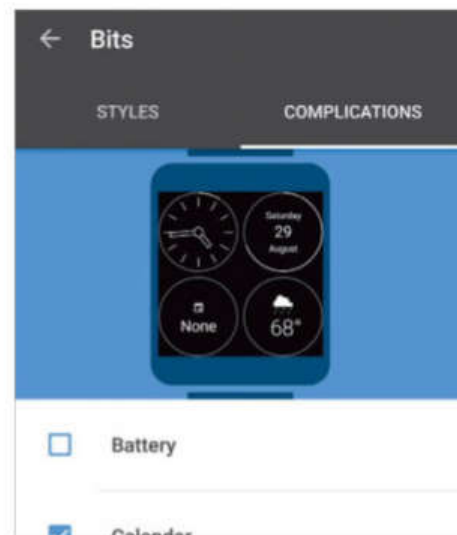
1 Install the watch face

Within the Android Wear app, you will see a link to explore available interactive watch faces. Look for the Bits Watch Face and install it as you would any other watch face. It will be available to select in the Android Wear app and directly on your watch.



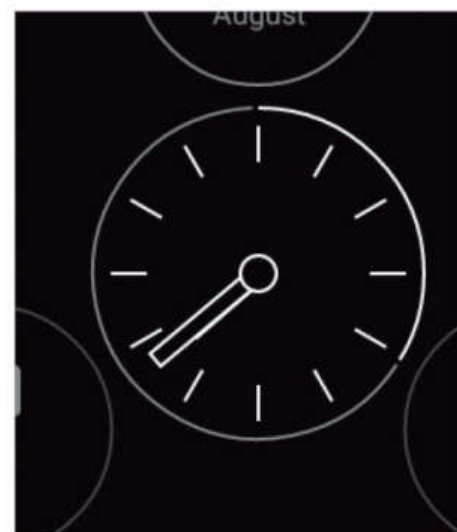
3 Not just a pretty face

Bits Watch Face looks like any other complicated watch face, but remember that each panel is interactive. When you tap one, it will immediately take up the full screen and be available for you to explore instantly. Take some time to experiment with the various options and perfect them for your needs.



2 Tap the cog

Tap the cog on the watch face thumbnail and then tap the Complications option. You can now choose exactly what you want to see on the watch face and these can be changed at any time as your requirements change. All changes will be shown on the watch instantly.



4 It really works

It won't take long for you to get used to the new interactive way of working with your Android Wear watch. Soon you will wonder how you ever managed with a normal watch face in the past. The new and useful functionality is obvious and subtle at the same time – a clever trick Android has managed to pull off.

Apps used » Opera Max Works with » Android 4.0 and up

Compress data on Netflix with Opera Max

This data management app is the ideal way to save mobile data with little effort

Mobile data is a precious commodity for many people thanks to network plan limits and the fact that we use our mobile devices for data-heavy tasks more than ever before. You could pay extra for a more generous plan or you could take advantage of the free Opera Max – Data management app and reduce the data that you use every day; in particular when watching movies and television shows. All you have to do is install the app and then click Connect on the main screen. Next, click Okay in the panel that appears and you're ready to go. You can use Netflix and other apps as normal, meanwhile Opera Max will do the data saving for you in the background. The savings vary, but we can assure you that watching online videos will give you the best chance of saving the largest amounts.

“Make great savings on your battery usage”

Stop specific apps using data

Opera Max – Data management lets you block individual apps from using data and this can save you money and battery life in the long run



Find the settings
Tap the menu icon and then select App management. You will be presented with a list of apps on the left under the Mobile Access tab. All you need to do is tap any that you want to block.

Fill the column
As you tap each app, you will see them populate the right-hand column, which means that they are now barred from using any data at all. Make sure you only block apps that are not essential.

Block under Wi-Fi
It may also make sense to block a selection of apps from using data under Wi-Fi. The data savings may not be so important, but you have the potential to make great savings on your battery usage.

Data usage

It is always useful to know how much data you're using in total and here you can check it over periods of time. If you have a data plan limit, this can help you decide what plan you should opt for

App by app

Opera Max also breaks down your savings and data usage by app – this is especially handy. You will be able to see which apps hog your data and which ones have benefited the most from the app. Some apps are unaffected by Opera Max

Timeline

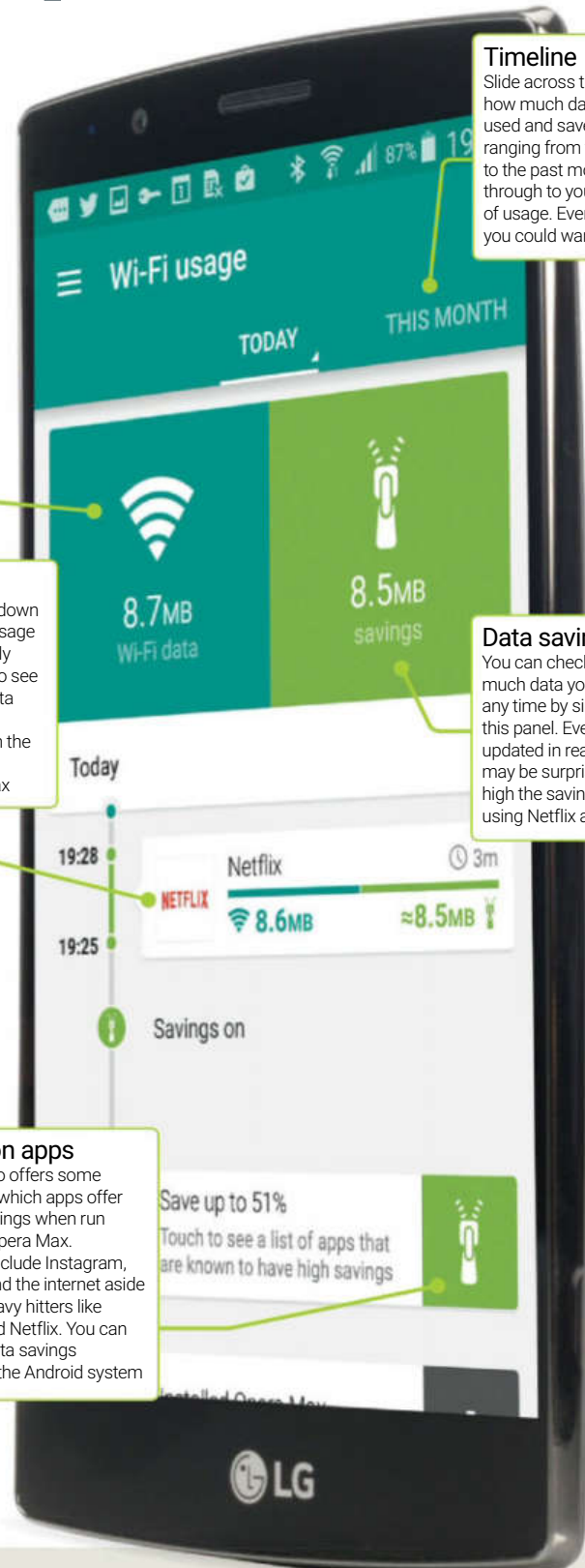
Slide across the screen to see how much data you have used and saved over periods ranging from the current day to the past month, all the way through to your entire timeline of usage. Every single statistic you could want is presented

Data savings

You can check to see how much data you have saved at any time by simply viewing this panel. Everything is updated in real time and you may be surprised at just how high the savings are when using Netflix and YouTube

Advice on apps

The app also offers some pointers on which apps offer the best savings when run alongside Opera Max. Examples include Instagram, Flipboard and the internet aside from the heavy hitters like YouTube and Netflix. You can make big data savings throughout the Android system



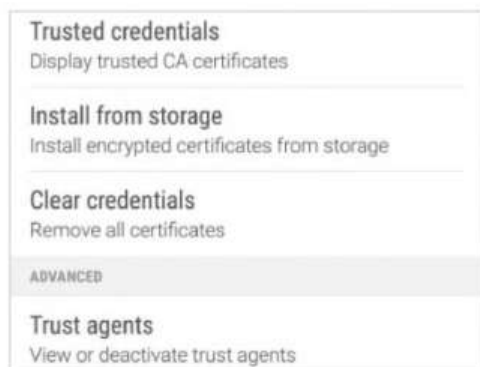
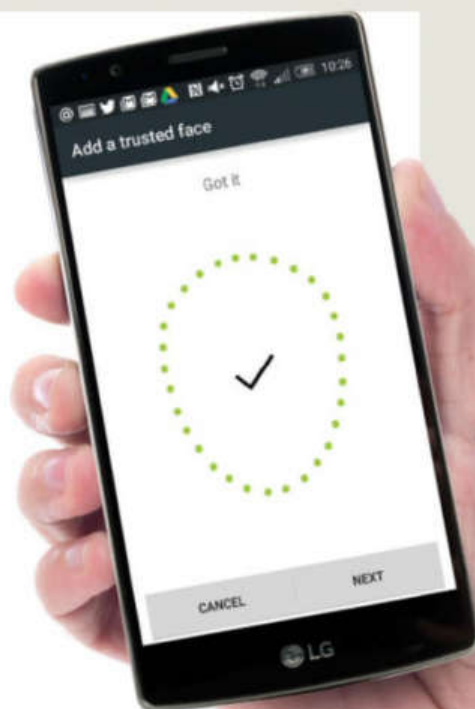
Apps used » Trusted face Works with » Android 5.0 and up

Improved Trusted face security

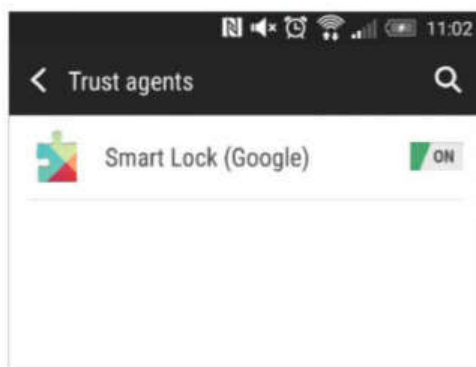
Use Google's new Trusted face options to make sure that you're the only one who can unlock your phone

One of the cooler features of Android Lollipop is the ability to unlock your phone with your face. Google has just added some new features to its Trusted face application to make it even easier to use your face alone to get to the content on your device.

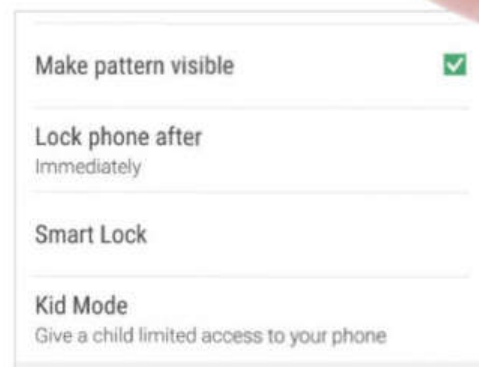
You can even change the settings so that your camera is more likely to recognise you in different situations. As well as using your face, you can use smart devices to unlock your Android phone. In this tutorial, we'll show you how to get the security set up, explain some of the tweaks and let you know some of the problems that Trusted face has. All you'll need for this tutorial is a device with a front-facing camera that has been updated to the latest version of Android Lollipop. It shouldn't take more than a few minutes to get everything up and running.



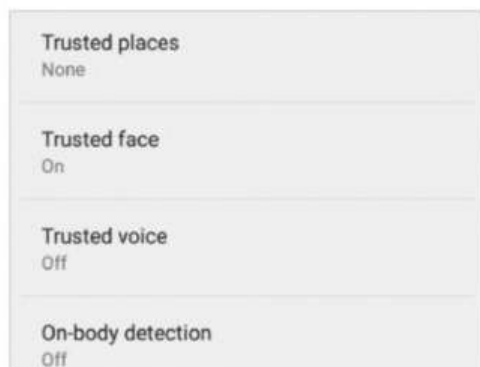
1 Set it up
First, you need to enable access for Trusted face. We're running this tutorial on a HTC One (M8), but the steps will be similar on any device not running vanilla Android. Head to Settings>Security menu. Scroll to Trust agents.



2 Trust the big G
You need to make sure that Smart Lock (Google) is turned on in this menu or nothing will work. Swipe the slider to on, then head back to the Security menu. If there wasn't before, you'll now see an option marked Smart Lock.



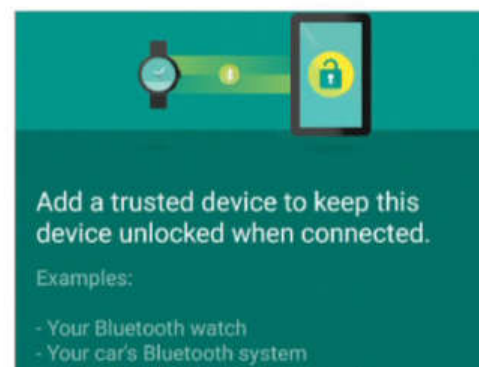
3 Enter your password
To get into this menu, you'll need to enter the pattern, password or pin that you use to unlock your phone. Then you'll be shown a list of the smart unlock options. Let's have a look at Trusted face; tap on that option.



4 Scan your face
You'll be told the best conditions to scan your face in. Hold your phone at eye level in a well-lit room and put your face in the oval of green dots in the centre of the screen. Once they're all filled in, you will have completed your first scan.



5 And again
Once Trusted face is set up, head to the menu and tap the option again. This time, choose Improve face matching. Read the instructions and take different shots using the same method. More shots mean it is more likely to recognise you.

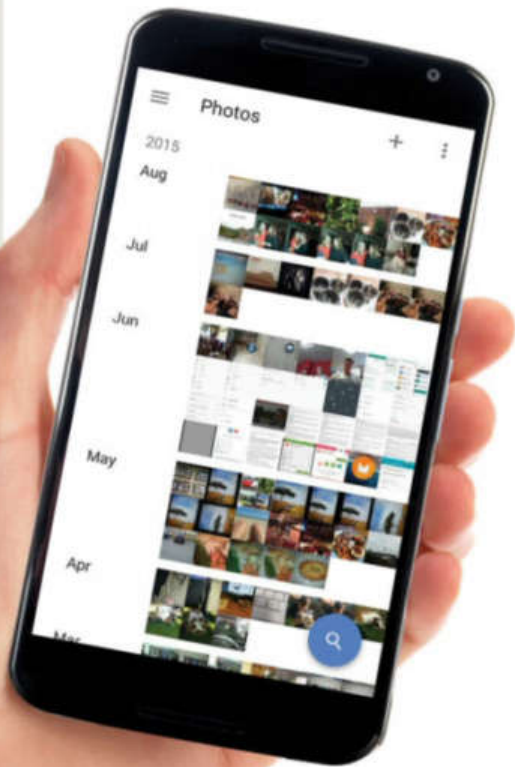


6 Get smart, stay smart
The options menu lets you set different ways of unlocking your device. You can use your registered smart devices or set your phone to remain unlocked while it's on your person. Remember to have a back-up pattern or pin.

App used >> Flickr and Google Photos Works with >> Varies with device

Transfer pictures from Flickr to Google Photos

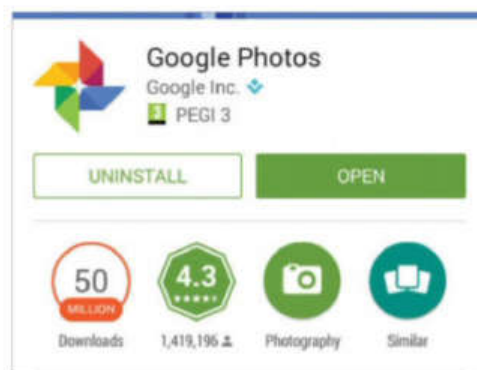
Make the most of Google Photos' unlimited storage by transferring your pictures from Flickr



When Google Photos announced that it was providing unlimited storage, many users were extremely keen to set it as their primary photo-storage service, due to its excellent layout and synchronisation with their Android phone. One of the most popular sites for unlimited storage was once Flickr, so millions of pictures will need to be transferred from Flickr to Google Photos. You are able to perform this action easily on a

desktop by opening up Google Photos and Flickr. You can then bulk select all the photos, drag and drop into Google Photos. These should all upload themselves easily. However, if you don't have access to a computer on which you can transfer all of your photos, there is a way using just your handset.

This tutorial will show you the steps needed to complete the transition using either your Android device or a desktop.



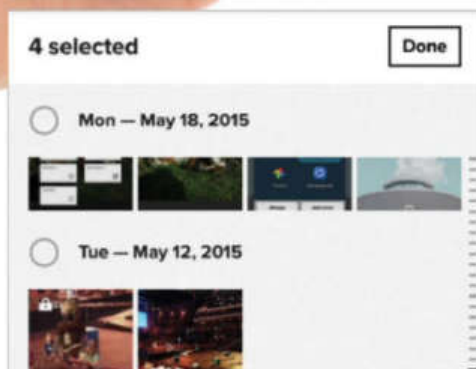
1 Get Google Photos

For this tutorial to be useful, you will need to have an active Flickr account with photos uploaded. You will also need to download the Google Photos app onto your Android phone if you haven't already. If you have got it, then the app may need updating to the latest version.



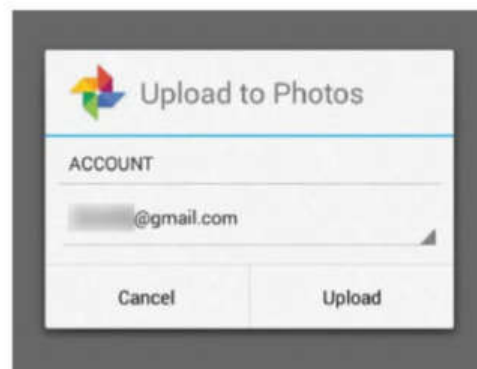
2 Access your Flickr

Log in to your Flickr account and scroll across to Camera Roll. This page houses your entire photo list, so this is where you'll want to perform the transfer. Press the button on the right marked Select and then choose all the photos you would like to transfer across.



3 Select your photos

Once you've selected all the photos you want to move – unfortunately, Flickr doesn't have a Select All function that would prove useful here – press the share symbol at the bottom of the screen. This will bring up a file share option. Name the album something memorable and tap share.



4 Upload your photos

Scroll down the list until you see the Google Photos option. Click on that and it will bring up the option Upload to Photos. Fill in your account details and tap the Upload button. You can then upload your pictures straight to the app, with the option to name the album.



5 Upload one by one

If you need to be more selective with your uploads, then tap on each individual photograph. At the bottom of the screen, you will see the familiar share icon. Tap on it and then you will see the Upload to Photos option. Click on this to upload the picture individually.

1 Password protect

Make sure that your online account, such as Flickr or Dropbox, is secured with a difficult-to-guess password.

2 Turn off automatic upload

If your security is breached, you don't want your photos uploading without you realising.

3 Delete as you go

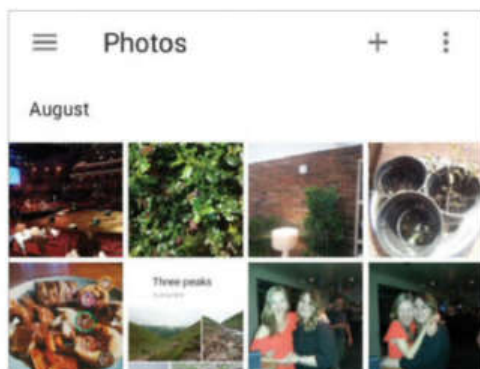
If there are any sensitive photos that you don't want made public, delete them from your phone.

4 Be careful when sharing

If you share private photos, make sure you send them to the right people: check email addresses.

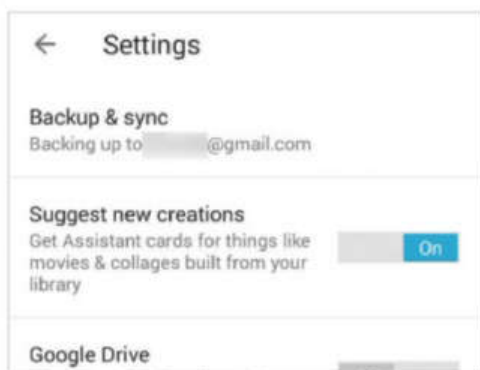
5 Disable downloads

Photos on Flickr are public domain. Disable downloads so people can't grab your images without permission.



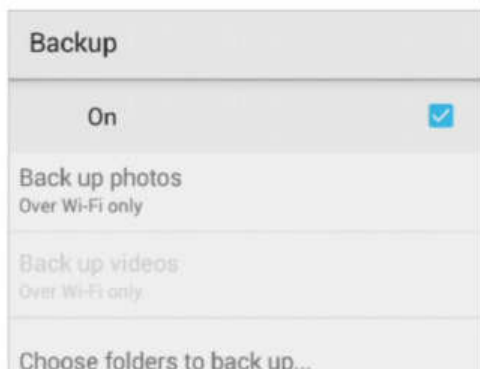
6 Check the transfer

Open up your Google Photos app and see if the photos have been transferred to your photo library. If they haven't, make sure that you are connected to the Wi-Fi as the large files may be blocked from moving over if the transfer would take up too much of your data allowance.



7 Back up your photos

To make sure that you have no need to do this again, you can choose to automatically back up any photos you take in the future on your Android device. Start this process by heading into your phone's Settings. Scroll down until you find the Backup & sync menu.



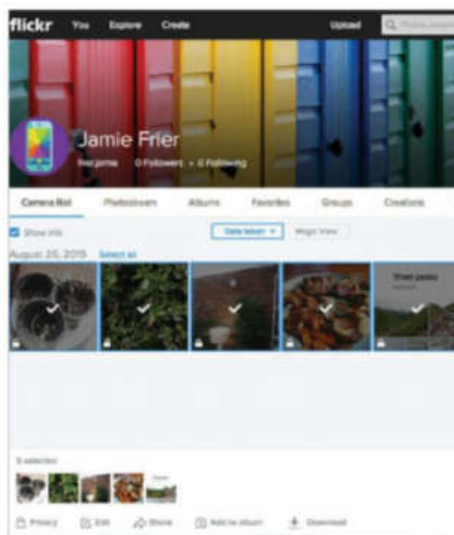
8 Create backup settings

Once you've entered your phone's Backup menu, there will be a range of options for you to tick. These range from only backing up when on the Wi-Fi to only backing up when charging. These settings are designed to keep you safe from additional charges, so be careful what you tick.



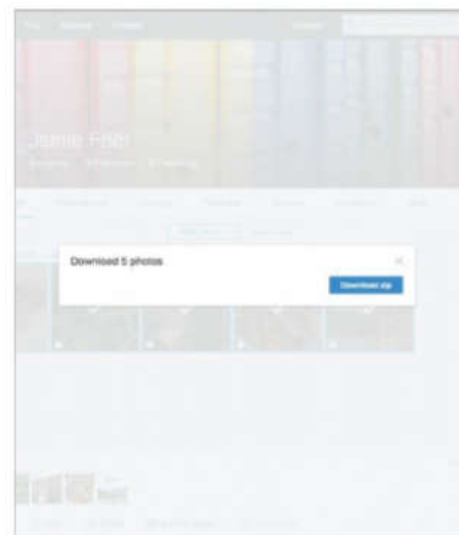
Swap your photos using Chrome

There is also an easy way to swap your pictures from Flickr to Google Photos via Chrome on your desktop



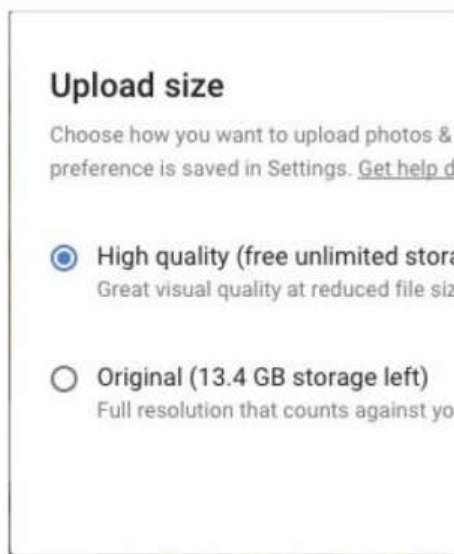
1 Log in to Flickr

Load up Google Chrome and then sign in to your Flickr account. Click on your Camera Roll, which will bring up all of your photographs. Select each one you want to transfer to Google Photos or choose the Select All option that is just above the first row of pictures.



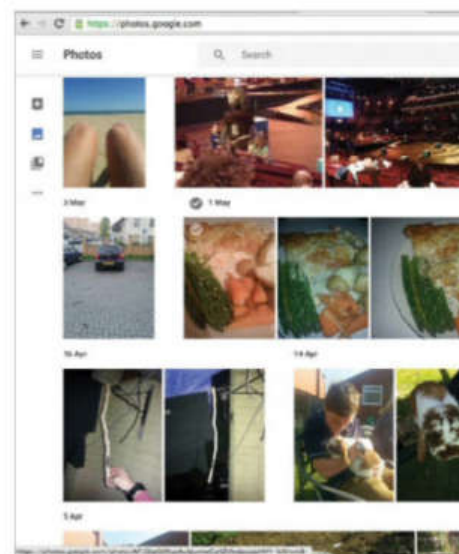
2 Download photos

At the bottom of the screen will be the word Share next to an arrow. Having selected the photos you want to transfer, click this button and a box will pop up. Click on Download zip and this will download all of the selected files to your computer.



3 Choose file sizes

Login to Google Photos and select Upload. Unzip the folder on your desktop, or in your downloads folder, then choose your preferred file size. We'd suggest the High quality option, but only if you have space; Original keeps photos in the highest resolution possible.



4 Check your photos

Once you've selected the file size, you can then decide whether you want to add your photos to an existing album or create a new one. After making your choice, click Upload. Your pictures should now be on Google Photos. Click on it to make sure they're there.

From the makers of **Android** magazine



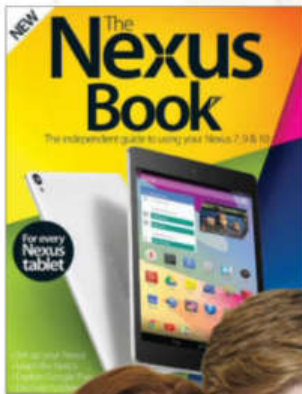
Samsung Galaxy

The Complete Manual

No matter what Galaxy device you have, this book will help you get the most from your phone or tablet. Packed with easy-to-follow guides to all the essential features, functions and apps, this is the perfect book to help you master your Galaxy.



Also available...



A world of content at your fingertips

Whether you love gaming, history, animals, photography, Photoshop, sci-fi or anything in between, every magazine and bookazine from Imagine Publishing is packed with expert advice and fascinating facts.



BUY YOUR COPY TODAY

Print edition available at www.imagineshop.co.uk

Digital edition available at www.greatdigitalmags.com



Top mods and tweaks for your rooted device

Hacker Zone

Jargon Buster

Get up to speed with all the terms you will need to know when it comes to hacking your phone

OS

Short for 'operating system'. Often the Android ROM will be referred to as the OS – this just means the system files on the Android device that make up your user experience, and is similar to Windows, Mac OS X or Ubuntu on a desktop computer.

ROM

Stands for 'read-only memory'. In the context of Android, the ROM refers to all the files that make up the operating system that is installed on your device. Gaining root privileges allows for replacement of the standard ROM with a custom one.

Root

'Rooting' your phone gives apps access to parts of the OS that are normally hidden from consumers. This enables you to run more powerful software and install custom ROMs on your phone.

ROM Manager

An app available from the Android Market that enables you to install a whole new version of your OS with a single click. It requires a rooted phone to use and is ideal for those new on the scene.

Titanium Backup

This app from Google Play enables you to back up everything on your phone – apps, data, settings and all. It means that you can restore your phone to how it was, even after you've updated or changed the ROM.

Unrevoked

Available from unrevoked.com, this is a one-click tool that can be used for rooting many popular HTC smartphones.

ADB

Stands for 'Android Debug Bridge'. ADB is mainly used for software development, but it also has some uses for hacking your phone. It can be used to push files onto the system folder, for instance.

Nandroid

You might come across the phrase 'perform a Nandroid backup'. This means using a custom recovery tool to make a back-up image of everything currently on your phone: OS, apps, data etc. It's very useful should you wish to restore your phone to its previous state later.

Radio

'Radio' refers to the software on your Android device that deals with making phone calls and data connections. Updating your radio version can bring better battery life and signal strength to your device. Some ROMs require the latest radio.

Flash

The storage in your device comprises flash memory, which is a type of solid-state storage. The terms 'flash' or 'flashing' mean installing some new software onto your device's storage.



48 Build your first Android game with Corona SDK

Learn how to design and code a ghostly Android game

54 Hacking Tips & Tricks

Essential hacking advice, including how to get more from the Xposed module

56 How to lock your bootloader

Discover how to revert your phone to having a locked bootloader after rooting

58 Change your device's screen resolution

Find the best screen resolution, density and overscan for your Android

59 Optimise battery with CPU Spy Reloaded

Use this app on your rooted device to get more control over the energy your CPU is using

60 Lock and protect apps with ProtectedApps

Use this Xposed module to add an extra layer of security to sensitive apps



Code your first Android game with Corona SDK

Learn how to write a ghostly Android game with Corona SDK

If you've spent any time browsing the Google Play store, you'll have noticed just how popular mobile games are. In fact, many of the best known mobile apps fall into the gaming category.

If you've ever fancied trying your hand at creating the next mobile gaming sensation, then you may want to check out Corona SDK. This free software development kit (SDK) makes developing mobile games fairly straightforward and is very beginner-friendly.

In this series of tutorials, we will show you how to set up Corona SDK. You will also learn how to develop a complete mobile gaming app that you can then export and play on your Android device.

The game you can create will challenge the player to tap as many on-screen objects as possible during a set amount of time. Although simple, this game does show you how to recreate many of the staples of mobile gaming, such as time limits, scores and the classic 'game over' screens.

As a final disclaimer, all the code here is designed to be as easy to understand as possible. This means it isn't always written in the most efficient way, so if you do want to get more experience with Corona SDK, then you can challenge yourself to 'clean up' this sample code.

Give the player feedback

Display different messages, depending on the player's score

Check the player's score

Once the game has finished, you may want to display different messages depending on how many points the player has scored. This involves checking what bracket their score falls into, for example: **if (score == 0)** will check whether they've scored zero.

Display custom messages

If the player does score zero, you can display a game lost message, such as: **loseText = display.newText("Better luck next time", display.contentCenterX, 40, native.systemFontBold, 20)**. You can then repeat this process for different score brackets.

Create multiple messages

To check whether the player has scored less than, or equal to nine, you'd use: **elseif (score <= 9)** then followed by your message. After this, in order to check whether they've scored higher than, or equal to, ten use: **elseif (score >= 10)** then followed by your message.

```

local function checkScore()
    local score = display.newText("Score: " .. score, display.contentCenterX, 40, native.systemFontBold, 20)
    local time = display.newText("Time remaining: " .. time, display.contentCenterX, 60, native.systemFontBold, 20)
    local loseText = display.newText("Better luck next time", display.contentCenterX, 40, native.systemFontBold, 20)
    local winText = display.newText("You did great! Well done!", display.contentCenterX, 40, native.systemFontBold, 20)

    if (score == 0) then
        loseText:toFront()
    elseif (score <= 9) then
        loseText:toFront()
    elseif (score >= 10) then
        winText:toFront()
    end
end
    
```

```

local function checkScore()
    local score = display.newText("Score: " .. score, display.contentCenterX, 40, native.systemFontBold, 20)
    local time = display.newText("Time remaining: " .. time, display.contentCenterX, 60, native.systemFontBold, 20)
    local loseText = display.newText("Better luck next time", display.contentCenterX, 40, native.systemFontBold, 20)
    local winText = display.newText("You did great! Well done!", display.contentCenterX, 40, native.systemFontBold, 20)

    if (score == 0) then
        loseText:toFront()
    elseif (score <= 9) then
        loseText:toFront()
    elseif (score >= 10) then
        winText:toFront()
    end
end
    
```

```

local function checkScore()
    local score = display.newText("Score: " .. score, display.contentCenterX, 40, native.systemFontBold, 20)
    local time = display.newText("Time remaining: " .. time, display.contentCenterX, 60, native.systemFontBold, 20)
    local loseText = display.newText("Better luck next time", display.contentCenterX, 40, native.systemFontBold, 20)
    local winText = display.newText("You did great! Well done!", display.contentCenterX, 40, native.systemFontBold, 20)

    if (score == 0) then
        loseText:toFront()
    elseif (score <= 9) then
        loseText:toFront()
    elseif (score >= 10) then
        winText:toFront()
    end
end
    
```

Five top tips on Corona SDK

1. Add comments

Code comments are notes you add to your code to make it more human-readable. To ensure comments aren't executed by the system, always format them with two dashes, for example: **--this code sets the background.**

2. Build an .apk from your Corona project to play on a device

Although you can run your project in the Corona Simulator, at some point you may want to test it on a real Android device. To build an .apk from your project, open it in Corona Simulator, then select File, followed by Build and Android.

3. Sign your .apk for testing

Creating an .apk for testing means signing it with a certificate. The Corona SDK does include a debug keystore that you can use for such testing purposes. You will find it in CoronaSDK>Resource Library>Android>debug.keystore and the password you'll need is 'android'.

4. Sign for public release

If you're creating a release .apk, you need to sign it with your own private key. For information on how to do that, see goo.gl/xDqYm.

5. Get more information

If you want to learn more about working with Corona SDK, then take a look at the official Corona documentation (docs.coronalabs.com).

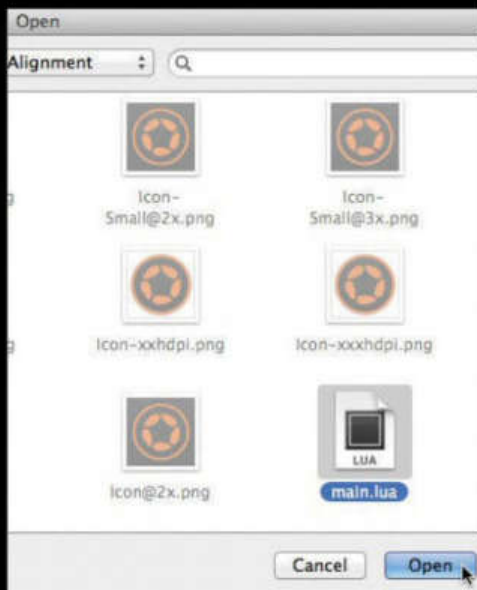
Set up Corona SDK

Get ready to code by setting up the development area

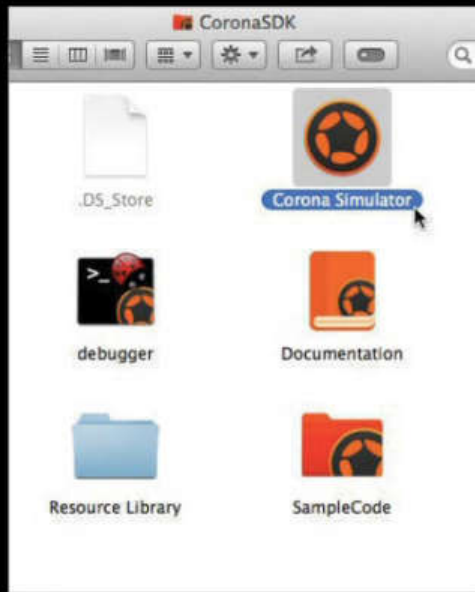
Corona SDK includes everything you need to develop for Corona, except somewhere to actually write your code! Although it may seem strange, you'll write your project in a separate text editor and then run it in the Corona SDK. In this tutorial, we'll be using the free Sublime Text editor.



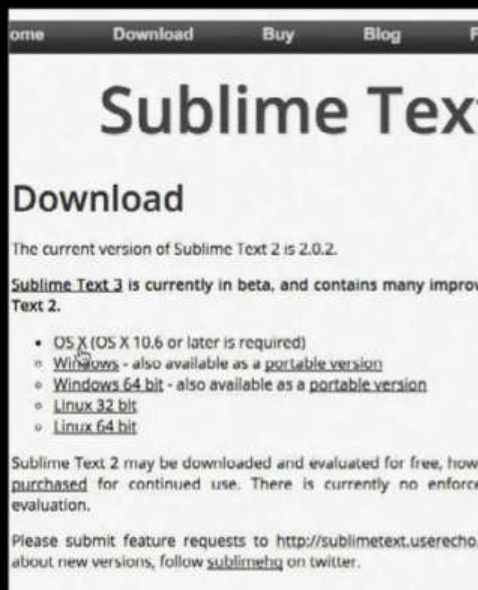
1 Download Corona SDK
On your computer, go to coronalabs.com and click Download. Create an account and then check your inbox for a verification email. Log in, then select the Download button again. Find the Public release of Corona SDK and click Download.



3 View a sample app
Select Samples from the main Corona Simulator screen. In the window that appears, open a folder and all subsequent subfolders until you see a main.lua file. Select, click Open and the project will be displayed in the Corona Simulator.



2 Install the SDK
Double-click your newly-downloaded Corona Simulator file and follow the on-screen instructions. Once installed, open your Corona SDK folder and double-click Corona Simulator. Enter the details of your Corona Labs account.

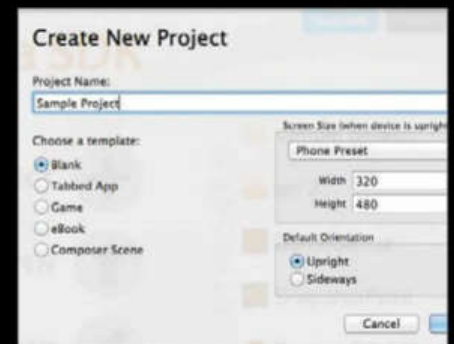


4 Set up your text editor
The final thing you'll need is an editor where you can write your Lua code. Go to sublimetext.com/2 and download Sublime Text. Once downloaded, install it. You'll use this editor to open and edit all of your Corona project files.

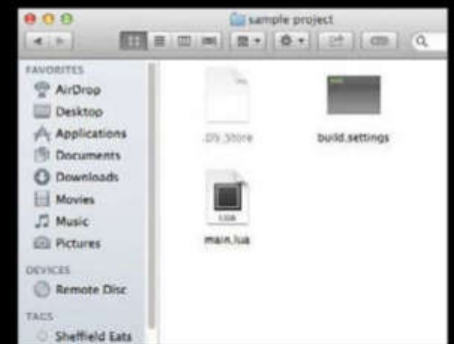


Create and configure a new Corona SDK project. Learn how to open and edit your Corona project files

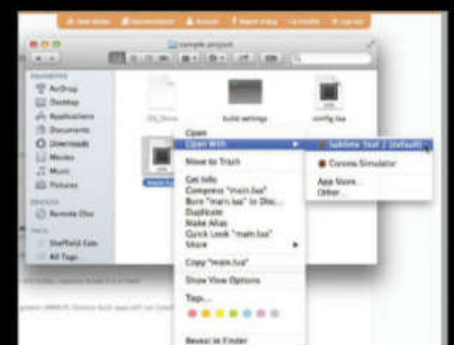
Create a new Corona project



1 Launch the Corona Simulator. On the main screen, click New project. Type a name then select Phone Preset. Set the Default Orientation to Upright. Click Next.



2 Navigate to the directory where you want to create your project. Click Create. Navigate to this directory (eg Desktop) where you'll find your new project.



3 Inside this folder are all the files that make up your project. To open a .lua file, Ctrl+click it and select 'Open With' followed by Sublime Text 2.



Create a user interface

Learn how to use letterbox scaling and ghost graphics in the user interface of your Corona SDK game

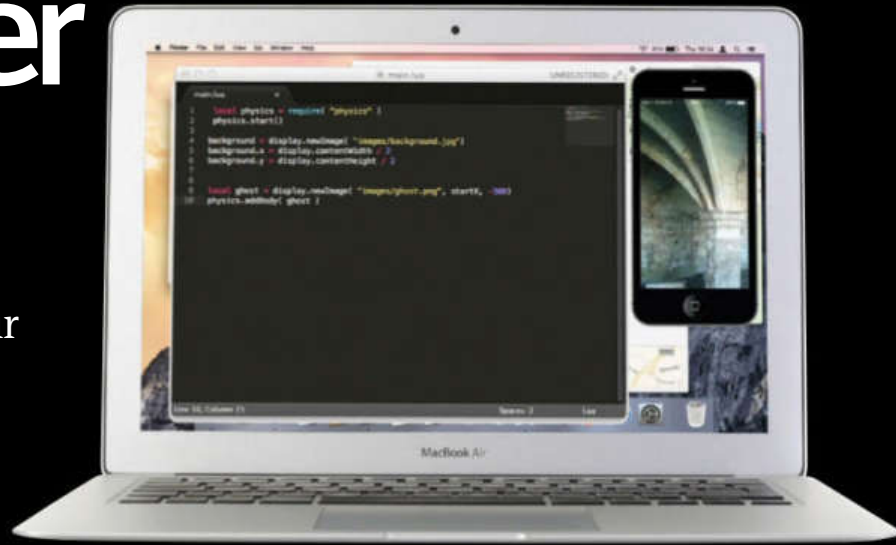
When you're creating images to use in your app, keep in mind that Android screens come in all shapes and sizes. Are your graphics going to display correctly across all these different devices?

In order to help you support multiple screens, Corona provides various scaling options. In this tutorial, we'll use letterbox as it scales your content to fill the screen while preserving the width and height ratio.

For the best results with letterbox scaling, create a background graphic and a game over graphic that are both 380 x 570. You'll also need a graphic that represents the falling objects the user needs to tap. We'll be using a ghost graphic, but you can use whatever image you want.

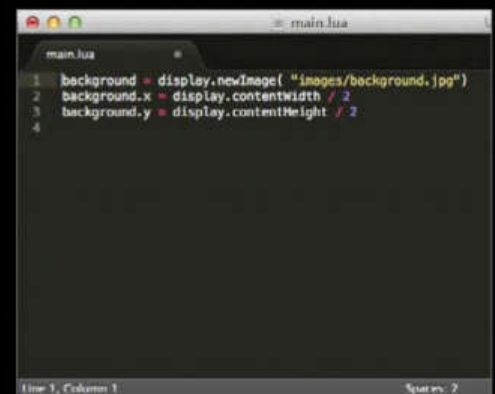
To help keep things organised, create a new Images folder inside your project directory and then place your three different graphic files inside.

To properly support Corona's letterbox scaling, you'll need to make some changes to your project's config.lua file. So, find config.lua in the project directory and open it in Sublime Text.



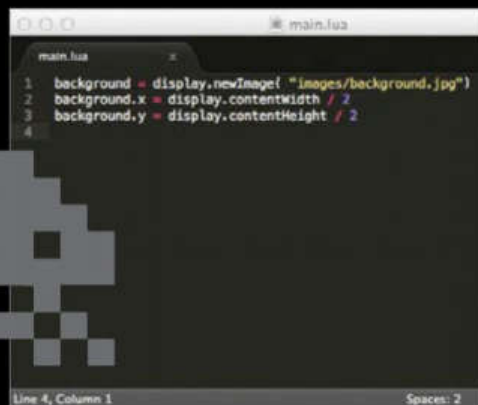
1 Configure scaling

Delete the text in config.lua, replace it with this code. Every slash indicates a new line and isn't part of the code: application = { / content = { / width = 320, / height = 480, scale = / "letterbox" / } / }. Save and close config.lua.



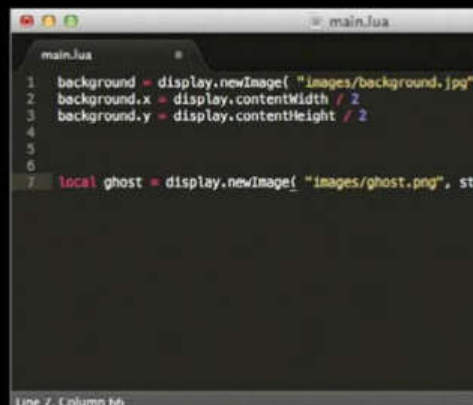
2 Add your background

Open main.lua and delete any text. Set your background and centre with: background = display.newImage("images/background.jpg") / background.x = display.contentWidth / 2. Followed by: background.y = display.contentHeight / 2.



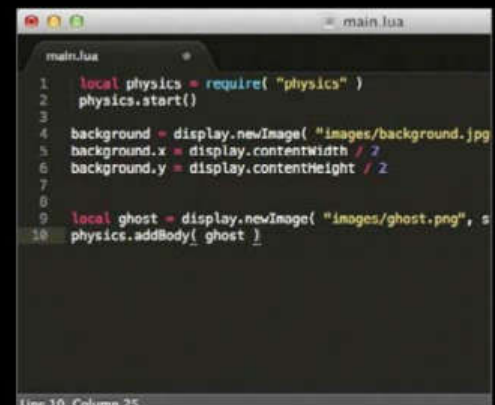
3 Add a ghost image

Check your handiwork in the Corona Simulator. Next, you'll need to create a ghost object. Define what image you want to use by adding: local ghost = display.newImage("images/ghost.png"). How do we make this image move?



4 x and y coordinates

Define the ghost's start by expanding the line: local ghost = display.newImage("images/ghost.png", startX, -300). This is the initial x and y coordinates. The x coordinate looks odd, but will make sense once we define startX.



5 Import physics engine

Our ghost still isn't an object, but this transformation is simple. In your ghost block of code, add: physics.addBody(ghost). At the beginning of main.lua add: local physics = require("physics") / physics.start(). Now it's an object!

Make your objects move

Let your ghosts move around your Android device's screen and randomise the value of startX

So far your project consists of a background and objects that are almost ready to start moving around on screen. The next step is writing the code that defines the value of each ghost object's starting position on the X axis, also known as startX.

Through startX, we're going to randomise the X position of each ghost object, because if every ghost fell from exactly the same point then the game wouldn't be very challenging! In this section, we'll randomise startX using the power of maths.

We also need to ensure that each ghost reacts to the player successfully tapping it. This means creating 'event listeners' that will listen for a specified event – basically, the player tapping the ghost object.

```
main.lua
1 local physics = require( "physics" )
2 physics.start()
3
4 background = display.newImage( "images/background.png" )
5 background.x = display.contentWidth / 2
6 background.y = display.contentHeight / 2
7
8 local function addNewGhost()
9 local ghost = display.newImage( "images/ghost.png" )
10 physics.addBody( ghost )
```

Line 8, Column 29



1 Add first ghost object

At the start of the ghost block of code, set the ball rolling by telling Corona that it needs to add a new ghost object to your game. This line is: local function addNewGhost(). The next step is defining the value of startX.

```
main.lua
1 local physics = require( "physics" )
2 physics.start()
3
4 background = display.newImage( "images/background.png" )
5 background.x = display.contentWidth / 2
6 background.y = display.contentHeight / 2
7
8 local function addNewGhost()
9 local startX = math.random(display.contentWidth*0.1, display.contentWidth*0.9)
10 local ghost = display.newImage( "images/ghost.png" )
11 physics.addBody( ghost )
12 ghost.enterFrame = offscreen
```

Line 13, Column 29



2 Ghost's x position

To make startX a number between 10 and 90% of the screen width, add: local startX = math.random(display.contentWidth*0.1, display.contentWidth*0.9). At the end of the ghost block of code, type: ghost.enterFrame = offscreen.

```
main.lua
1 local physics = require( "physics" )
2 physics.start()
3
4 background = display.newImage( "images/background.png" )
5 background.x = display.contentWidth / 2
6 background.y = display.contentHeight / 2
7
8 local function addNewGhost()
9 local startX = math.random(display.contentWidth*0.1, display.contentWidth*0.9)
10 local ghost = display.newImage( "images/ghost.png" )
11 physics.addBody( ghost )
12 ghost.enterFrame = offscreen
13 Runtime.addEventListener( "enterFrame", ghost )
14 ghost.addEventListener( "touch", ghostTouched )
15 end
```

Line 16, Column 4



3 Program event listener

Beneath this, create the actual event listener: Runtime.addEventListener("enterFrame", ghost). Tell this listener the code to call when an object is touched: ghost.addEventListener("touch", ghostTouched). Finish with the line: end.



Add a time limit

Make your game more challenging by adding a time limit and display this countdown on screen

```
main.lua
1 local physics = require( "physics" )
2 physics.start()
3
4 background = display.newImage( "images/background.png" )
5 background.x = display.contentWidth / 2
6 background.y = display.contentHeight / 2
7
8 local function addNewGhost()
9 local startX = math.random(display.contentWidth*0.1, display.contentWidth*0.9)
10 local ghost = display.newImage( "images/ghost.png" )
11 physics.addBody( ghost )
12 ghost.enterFrame = offscreen
13 Runtime.addEventListener( "enterFrame", ghost )
14 ghost.addEventListener( "touch", ghostTouched )
15 end
16 addNewGhost()
17 timer.performWithDelay(400, addNewGhost, 1)
```

Line 19, Column 44



1 Start gameplay

After the ghost code, type: addNewGhost(). Define how many milliseconds to wait before creating new objects: timer.performWithDelay(400, addNewGhost, 0). Next, set a time limit below the background code.

```
main.lua
1 local physics = require( "physics" )
2 physics.start()
3
4 background = display.newImage( "images/background.png" )
5 background.x = display.contentWidth / 2
6 background.y = display.contentHeight / 2
7
8 local timeLimit = 10
9 timeLeft = display.newText( "Time remaining:", timeLimit,
10 systemFontBold, 20 )
11 timeLeft.x = display.contentWidth / 2
12 timeLeft.y = display.contentHeight / 2
13
14 local function addNewGhost()
15 local startX = math.random(display.contentWidth*0.1, display.contentWidth*0.9)
16 local ghost = display.newImage( "images/ghost.png" )
17 physics.addBody( ghost )
18 ghost.enterFrame = offscreen
19 Runtime.addEventListener( "enterFrame", ghost )
20 ghost.addEventListener( "touch", ghostTouched )
21 end
22 addNewGhost()
23 timer.performWithDelay(400, addNewGhost, 1)
```

Line 12, Column 5



2 10 second limit

Type: local timeLimit = 10. Countdown on screen: timeLeft = display.newText("Time remaining:", ..timeLimit, 160, 40, native, systemFontBold, 20). Set it running: local function timerDown() / timeLimit = timeLimit-1.

```
main.lua
1 local physics = require( "physics" )
2 physics.start()
3
4 background = display.newImage( "images/background.png" )
5 background.x = display.contentWidth / 2
6 background.y = display.contentHeight / 2
7
8 local timeLimit = 10
9 timeLeft = display.newText( "Time remaining:", timeLimit,
10 systemFontBold, 20 )
11 timeLeft.x = display.contentWidth / 2
12 timeLeft.y = display.contentHeight / 2
13
14 local function addNewGhost()
15 local startX = math.random(display.contentWidth*0.1, display.contentWidth*0.9)
16 local ghost = display.newImage( "images/ghost.png" )
17 physics.addBody( ghost )
18 ghost.enterFrame = offscreen
19 Runtime.addEventListener( "enterFrame", ghost )
20 ghost.addEventListener( "touch", ghostTouched )
21 end
22 addNewGhost()
23 timer.performWithDelay(400, addNewGhost, 1)
```

Line 1, Column 1



3 End gameplay

To ensure the countdown is correct, add: timeLeft.text = "Time remaining:" ..timeLimit. When the timer hits zero – game over! So add: if(timeLimit==0)then / gameIsActive = false. Objects will continue to fall, stop them with: physics.pause ().

```
main.lua
1 local physics = require( "physics" )
2 physics.start()
3
4 background = display.newImage( "images/background.png" )
5 background.x = display.contentWidth / 2
6 background.y = display.contentHeight / 2
7
8 local timeLimit = 10
9 timeLeft = display.newText( "Time remaining:", timeLimit,
10 systemFontBold, 20 )
11 timeLeft.x = display.contentWidth / 2
12 timeLeft.y = display.contentHeight / 2
13
14 local function addNewGhost()
15 local startX = math.random(display.contentWidth*0.1, display.contentWidth*0.9)
16 local ghost = display.newImage( "images/ghost.png" )
17 physics.addBody( ghost )
18 ghost.enterFrame = offscreen
19 Runtime.addEventListener( "enterFrame", ghost )
20 ghost.addEventListener( "touch", ghostTouched )
21 end
22 addNewGhost()
23 timer.performWithDelay(400, addNewGhost, 1)
```

Line 16, Column 10



4 Game over

To display game over: local gameOverScreen = display.newImage("images/gameOver.png", display.contentCenterX, display.contentCenterY) / end /end. Set the timer running: timer.performWithDelay(1000, timerDown, timeLimit).

FOR THE GNU GENERATION

www.linuxuser.co.uk

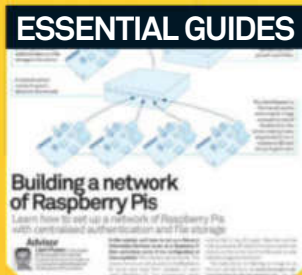


LinuxUser & Developer

Available
from all good
newsagents &
supermarkets
today

ON SALE NOW:

» Windows apps with Wine » Systems programming » Pi music visualiser



BUY YOUR ISSUE TODAY

Print edition available at www.imagineshop.co.uk

Digital edition available at www.greatdigitalmags.com

Available on the following platforms



facebook.com/LinuxUserUK



twitter.com/LinuxUserMag

status update

Which devices are best for the hacking scene?

Huawei Honor 7

Rooted?: Yes
Active Development

Low
The Honor 7's Emotion UI has some issues, but with a few tweaks post-rooting you can improve it tenfold.



Samsung Galaxy S6 Edge+

Rooted?: Yes
Active Development

Medium
Battery worries seem to be commonplace, so consider an alternate kernel to improve things.



Moto X Style

Rooted?: Yes
Active Development:

High
It's easy to root, and there's a decent selection of recovery tools to complete the procedure.



Samsung Gear S2

Rooted?: No
Active Development:

Low
It's early days, but developers are busy looking at various ways to tweak Samsung's new circular display.

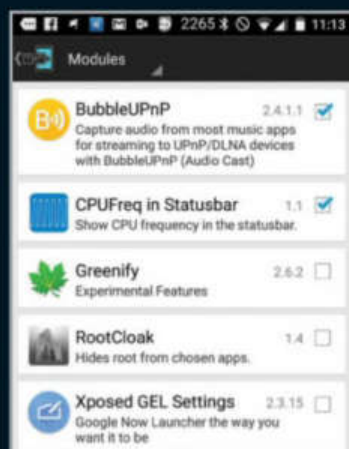


Tips & Tricks

Use Xposed to get new features

With the Xposed Framework installed on your rooted Android Lollipop device (see below), you can obtain useful features that can usually be found only on custom ROMs. Rather than flash a custom ROM to grab these useful functions, you can download specific Xposed modules, saving you time and effort.

To install these tweaks, browse through the available modules in the Xposed-app download screen. Here you'll find tools such as RootCloak, for hiding your root status from apps that check for it, and CustomShare, which enables you to edit the apps that appear on the share menu.



Xposed brings a whole new dimension of possible tweaks to Android

Install a module by selecting the one you want, check the description to confirm its function then swipe to the versions view and tap Install. You'll need to pull down the message in the Notification area and tap the Activate button, then reboot to complete the installation.

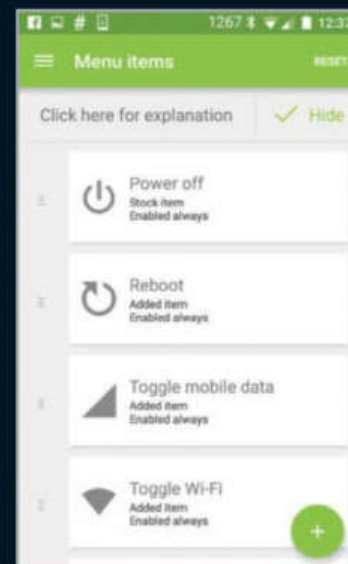
The Xposed module has over 650 modules. We've picked some highlights for you to take a look at and install if you like them.

Make the most of hardware buttons

How useful is your power button? Instead of relying on it purely to turn off your phone or switch into standby mode, why not give it a new job? Some custom ROMs offer additional functions to the power button, such as an airplane mode toggle, or even a quick way to reset into the bootloader or recovery modes.

You can add these options thanks to the Advanced Power Menu+ module, which also offers a flashlight option and the ability to quickly call a single phone number directly from your power button menu.

After installing the menu, launch the app, hold the power button down, then tap Retry. In the resulting screen, tap + to begin adding items to the power menu. Note that these can be reordered by pressing and dragging them as needed.



Adding quick shortcuts to your power button menu can save you time

When you're not listening to music or adjusting your ringtone volume, the volume buttons are doing very little, but they can be remapped to add extra usefulness. For instance, thanks to the XUpDown module, you can set your volume buttons as page-up/page-down buttons when reading webpages in Chrome.

Xposed lockscreen mods

In the stock Lollipop, lockscreen widgets are virtually completely absent, but you can fix this by adding the Lockscreen widgets [LP] module.

quick hacks

Install Xposed in Android Lollipop

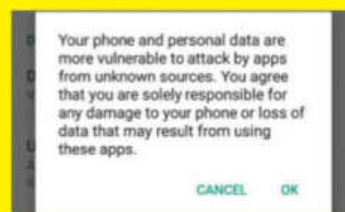
To use the Xposed modules, you'll need to install the Xposed Framework. This requires a rooted device and brings even more possible tweaks to Android.

Please note, Samsung devices that have the TouchWiz user interface will not be able to use Xposed on Android Lollipop.



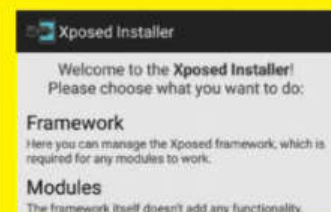
1 Download the installer

You'll need both the Xposed Installer APK and the correct framework ZIP file from XDA-Developers.com. There are ZIPs for ARM, ARM 64-bit and x86 processors. Save the ZIP.



2 Prepare to install

In Android, enable unknown sources in Settings>Security. You're then ready to install Xposed, so restart your phone, booting into your chosen recovery. It's wise to make a full Nandroid backup of your device.



3 Install Xposed

In recovery mode, select the install option and browse your phone's storage for the Xposed ZIP file. Confirm installation and reboot to complete. Finish off by installing the Xposed APK.

Share your tips

Got a great Chromecast hack? Let us know!

» facebook

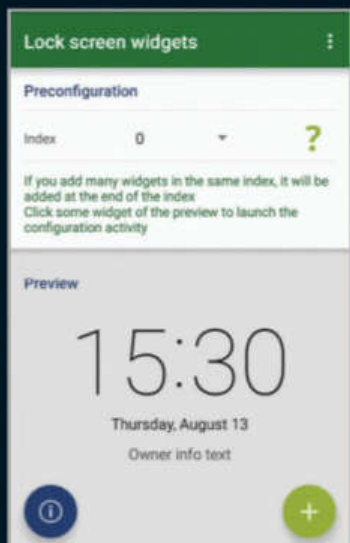
/littlegreenrobot
Like us on Facebook and join our online community

» twitter

@lgrobot
Follow us on Twitter to send us your tips & tricks

» email

qa@littlegreenrobot.co.uk
Discovered anything good about your Android phone? Let us know!



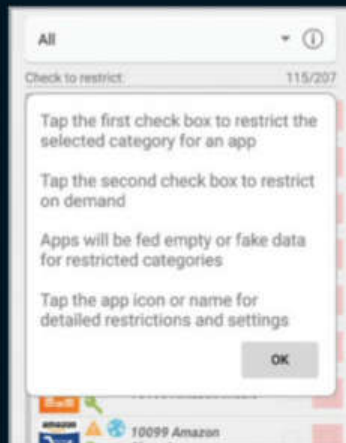
Bring lockscreen widgets to Lollipop using the Xposed modules

With this installed, widgets can be added to the lockscreen and every aspect of their size adjusted. Additionally, the clock, alarm and date can be removed, providing more space for your lockscreen widgets.

On a similar theme, the Lockscreen clock mods [LP] module brings you the tools to change the appearance and position of your lockscreen clock. Used in conjunction, these two apps can help you to completely refresh your lockscreen's appearance, making it both stylish and functional – qualities missing from the stock Lollipop.

Gain more privacy with Xposed

As well as bringing useful shortcuts and time-saving functionality, Xposed modules can also help to improve your smartphone's privacy.



Block apps from sharing your contacts data using the XPrivacy module

Regular listener to MP3 albums, audiobooks and such? AudioPrivacy is the answer here: a very useful enhancement that removes album art and artist information from the Android lockscreen. If you want to listen to music without sharing the identity of your favoured singer or band with anyone nearby, then this is just what you need.

If you're looking for greater control over the privacy of the data that your Android device handles, XPrivacy is the answer. Designed to prevent apps from leaking sensitive data (such as contacts or location information), XPrivacy feeds apps that require this information with fake or blank data. Consequently, you retain your privacy while still enabling the apps to run as intended.

Bulk tweaks with just one module

Perhaps the most famous of all Xposed modules, GravityBox

introduces a host of new features and tweaks to your device, with different versions for Android Lollipop, KitKat and Jelly Bean.

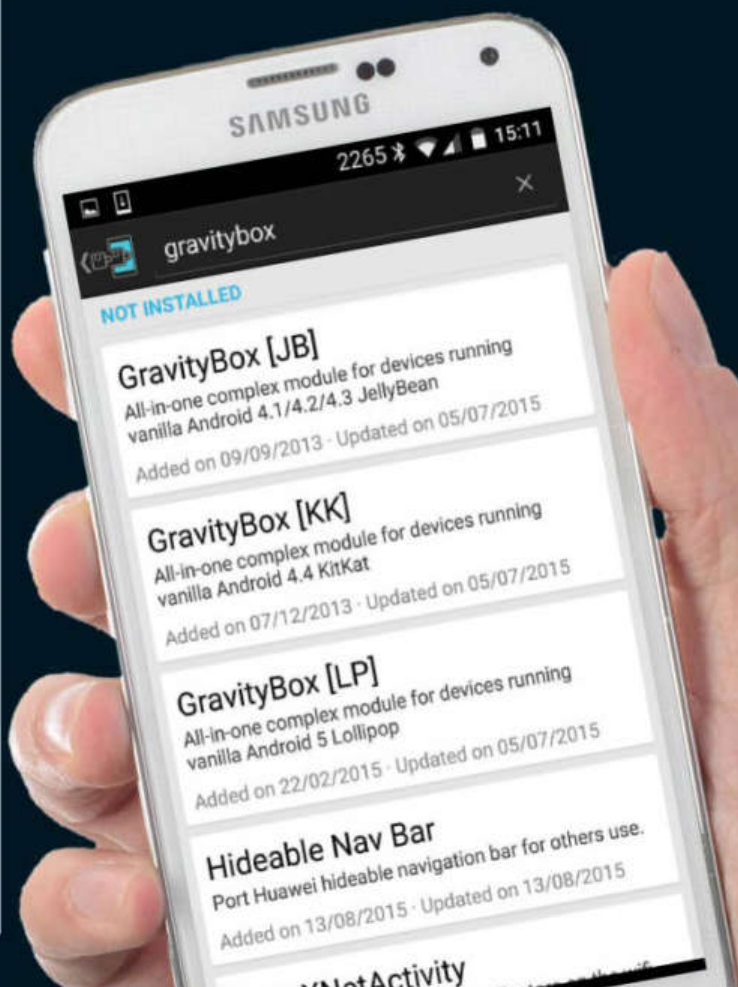
With tweaks for the lockscreen, status bar, navigation bar, hardware keys, dialer, and the addition of screen recording and notification control, GravityBox is arguably the best of the Xposed modules in just one single installation.

However, as useful as GravityBox is, it comes with some

restrictions. For Lollipop users, the best results will be gained on the stock Nexus 5 or other devices running the AOSP version of Android Lollipop. If you're using HTC Sense, Samsung TouchWiz, MIUI, LeWa, Sony Xperia and so on, GravityBox simply won't work.

If this affects you, try using individual modules instead.

GravityBox puts a whole host of tweaks right into your hands

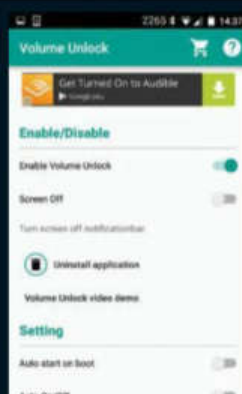


Hacking the easy way Get great new features without getting your hands (too) dirty



Gravity Screen – On/Off

Price: Free + IAP
From: Google Play
Need root? No
Power button wearing out? Gravity Screen is an app that turns your phone's display off if it is just in your pocket or even lying flat on a surface. When you pick it up again, the display will switch back on to greet you.



Volume Unlock Power Button Fix

Price: Free + IAP
From: Google Play
Need root? No
Another fix for all those damaged power buttons, this free app enables you to use the volume buttons to wake up your phone, getting a little more life out of your device before you choose to upgrade to a new one.



Volume Button Camera

Price: Free
From: Google Play
Need root? No
Another use for your volume buttons is as a substitute camera-shutter control. This can be an excellent tool for any selfie fans out there using a phone without a front-facing camera as it makes things less fiddly.

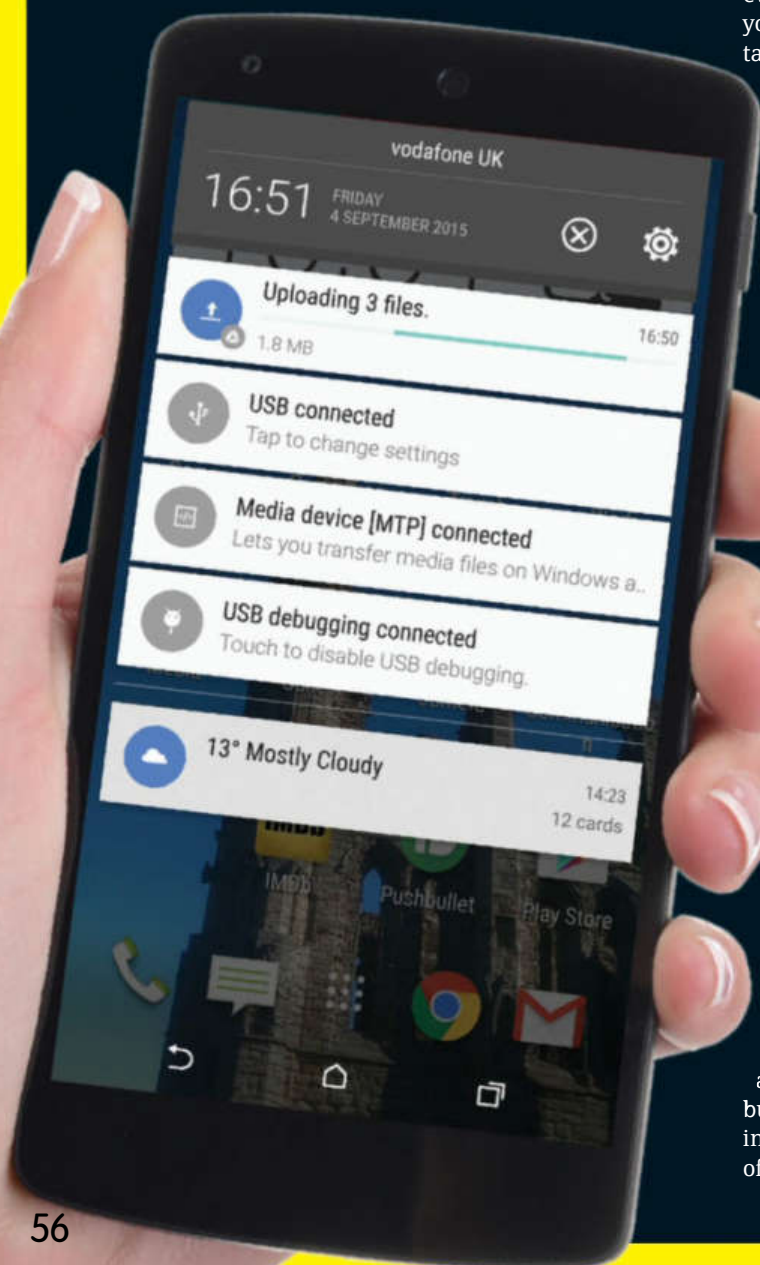
Check our website daily for even more tips & tricks

» www.littlegreenrobot.co.uk

Works with » Any version of Android Difficulty » Advanced

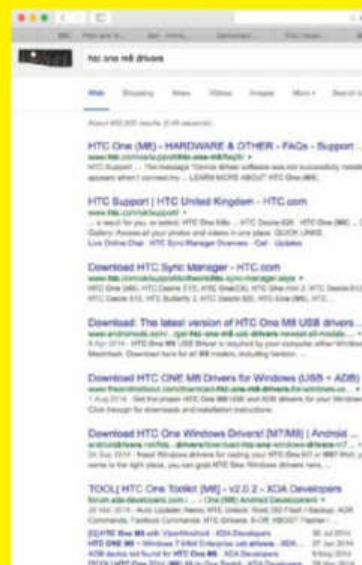
How to lock your bootloader

Revert your phone to having a locked bootloader after rooting it



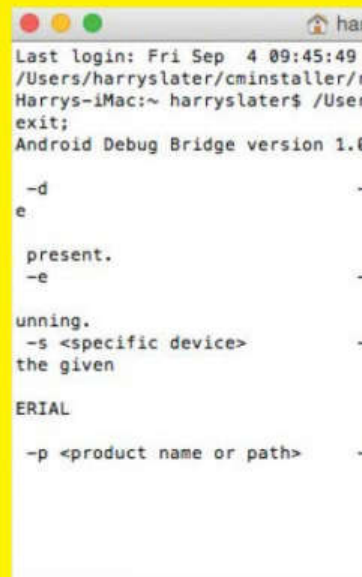
The bootloader is a hugely important part of your Android software. It's what kicks everything off when you turn on your device, telling your phone or tablet what it should load. Most devices ship with a locked bootloader, which essentially means they'll only run programs that have been verified by the bootloader. This means that it's difficult or impossible to use a different OS to the one that the device ships with. Unlocking the bootloader gets past this and means you can root your device then install

pretty much whatever you want on your phone or tablet. But there are times when you'll want to shut that door. Maybe you're trying to sell your device and you want it back to factory settings, or perhaps you just want to go back to a standard OS with the added security that the bootloader offers. In this tutorial, we'll walk you through how to lock your bootloader. It's a pretty fiddly process – you'll need a computer at some point and you'll need to set aside an hour or so. If you are unfamiliar with some of the terminology or steps that we take, then it might be better to do a bit more research before you attempt the task. This isn't an easy thing to do by any means, but it's worth a try if you're interested in the deeper workings of your Android device.



1 Get your drivers

To start things off, you are going to need to install the drivers for your device on your computer. A quick Google search is sure to show you what you will need. Make sure you have the latest versions of these drivers installed and that you delete any earlier versions that might already be hiding on your computer.



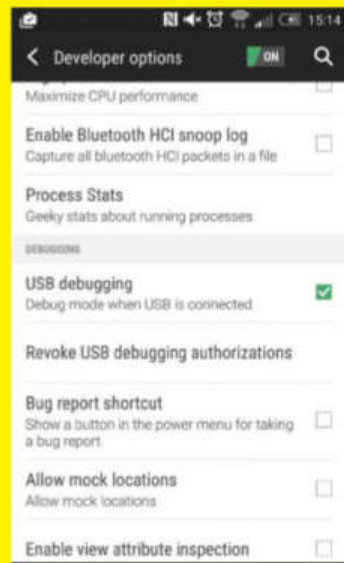
6 Turn on ADB

Now is the time to open up ADB. You will need the command lines you found with your searches in Step 5. Make sure that you don't connect your device until after you have opened up a command window. When you're ready, insert your USB cable. It's best to use the one that came in the box with your device.



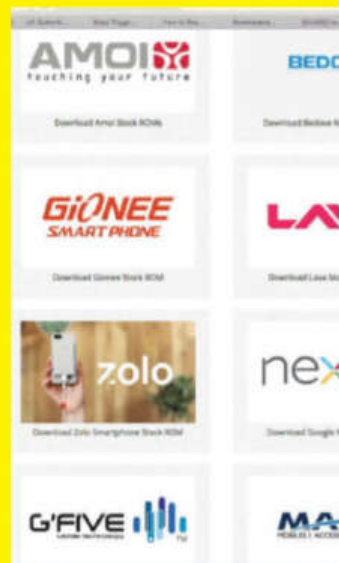
2 Get ADB

Next you'll need to download and install Android Debug Bridge (ADB) on your computer. Getting this set up can be a pretty intensive process on its own, so if you don't already have it running on your computer then it'll be worth taking a look at some of our other tutorials on how to do this.



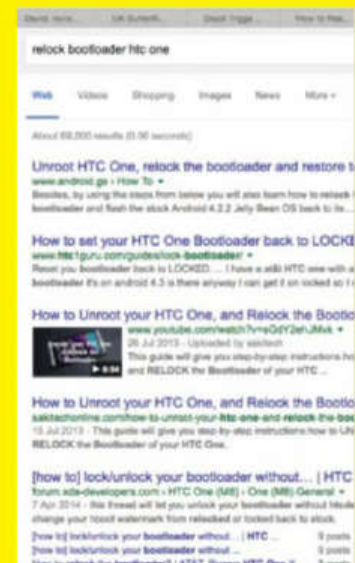
3 Turn on USB debugging

Now you'll need to make sure that USB debugging is turned on in the settings of your device. This is probably the easiest part of the process. Head to Settings on your phone or tablet, then into Developer options and make sure that the USB debugging box is ticked.



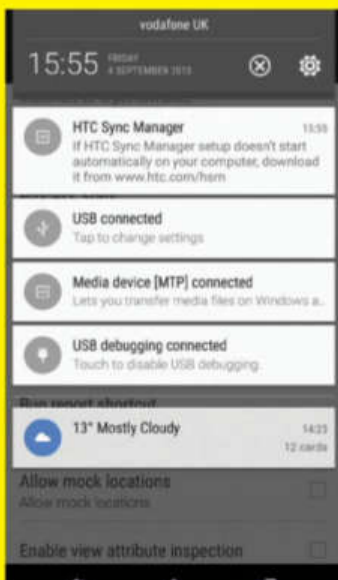
4 A new image

If you're trying to reset your device to its factory settings, you'll also need a recovery image of the original OS to install. Have a search to find the stock ROM for your device. There's a list of some of the ones available here at goo.gl/Sljpuz. Otherwise, a Google search will point you in the right direction.



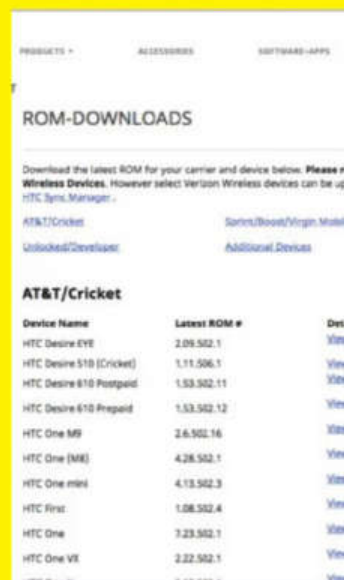
5 Go your own way

The steps up to this point have all been pretty similar, but now is the time to find out some more particular details on your own. You'll need to search for 'lock bootloader' and the name of your device. It's important you get the right device because the command lines you find will be different for each device.



7 Enable USB debugging

Make sure that when you insert your USB cable, your device tells you that USB debugging is now running. It's a good idea to turn off any media connections that your phone would automatically start as well, as these would interfere with the debugging process.



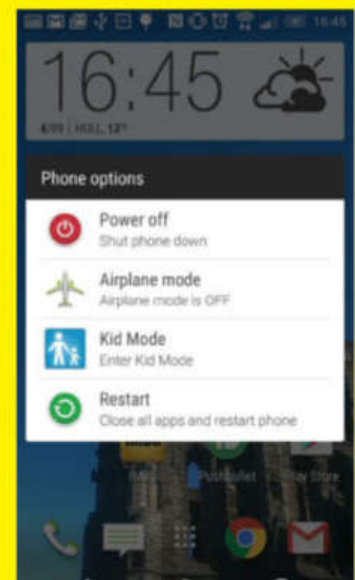
8 Flash your ROM

If you're trying to get your device back to factory settings, it doesn't really matter whereabouts in the process you flash your ROM. If everything has worked correctly, the locked bootloader will still let you install the correct operating system. Best to wait until you've run the process to be safe.



9 Add the codes

Time to use ADB to reset your lock. Use the ADB command panel and make sure you use the precise layout of the codes. It doesn't take much of a mistake at this point in the process to leave your device permanently bricked. As usual, make sure you have made a backup of your device's files.



10 Check it worked

To see if the bootloader is now locked, restart your device. As it's powering up, hold down the power and volume down buttons together. At the top of the screen, there should be a message letting you know that the bootloader is locked. If there isn't, check the code and try again.

Works with >> 4.3 and up >> Difficulty Easy

Change your device's screen resolution

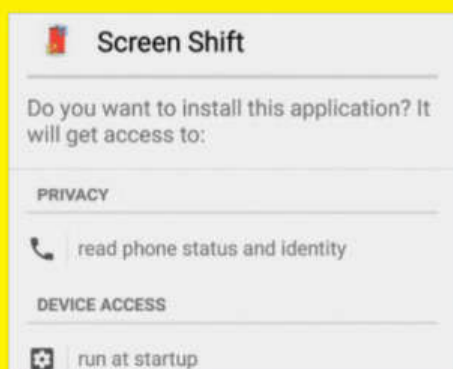
Find the best screen resolution, density and overscan for your Android

If a high-resolution screen is something you look for in an Android device, then you may be interested in Screen Shift – an app that lets you adjust a rooted device's screen settings to your preference, including the resolution.

While you may be tempted to boost these settings in the hope of getting a sharper display, you may also want to consider reducing the resolution, as this

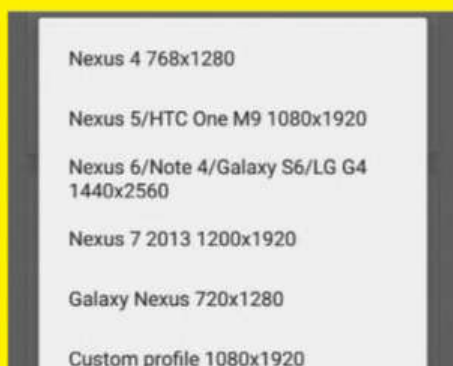
can give you a performance boost. Trial and error is a big part of this app, so after you've made adjustments, play around with your favourite apps to see if these settings work for you.

Screen Shift isn't available on Google Play, so to install it you'll need a file explorer app, plus Unknown sources enabled. You'll find Unknown sources by selecting Settings, followed by Security.



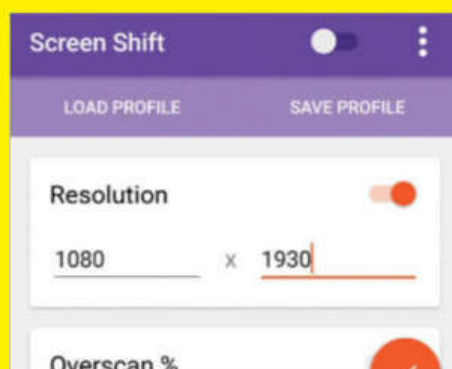
1 Install Screen Shift

Start by creating a full backup. Then, download the Screen Shift app from goo.gl/V1zd1i. Open your file explorer app, navigate to the Download folder and tap the app to install. Launch Screen Shift, grant it user permissions and swipe through the introduction.



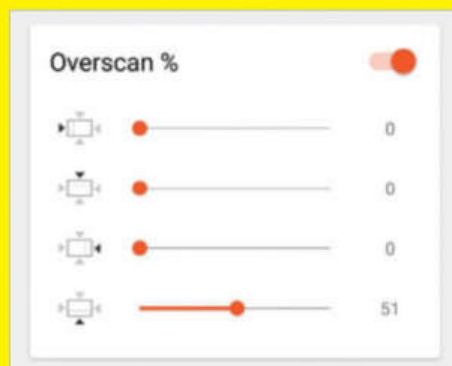
4 Create profiles

Screen Shift includes several resolution profiles you can try. Tap Load Profile, then tap a profile to apply it to your device. You can create your own resolution profiles by entering the desired width and height settings, then tapping Save profile. Enter a name and then tap Save.



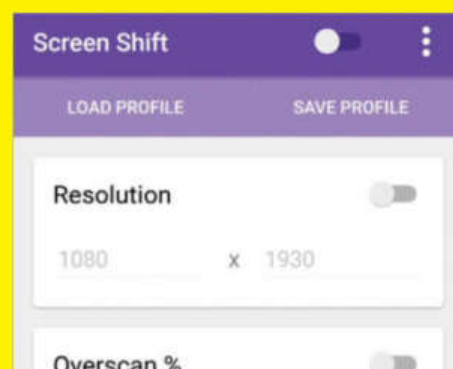
2 Experiment

To activate Screen Shift, tap the slider in the toolbar. To start experimenting, tap the Resolution slider. Enter your desired width and height resolutions, then tap the checkmark to see these settings in action. Decide whether to keep this resolution by tapping Yes or No.



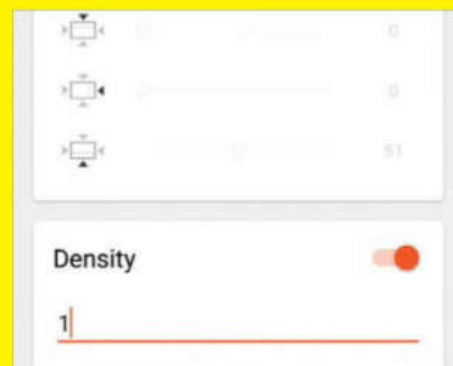
5 Adjust overscan

You can also change the amount of Overscan. However, this can create a clipped effect where some onscreen elements become unreachable, so approach this feature with caution! To use, drag the sliders to the desired positions then tap the Overscan slider.



3 Return to default

To try different resolutions, replace the width and height settings. To resume using your device's default resolution, tap the Resolution slider to the off position. Alternatively, you can turn Screen Shift off completely by tapping the slider located in the toolbar.



6 Adjust pixels

Density value is the quantity of pixels within an area of your screen, also known as dots per inch. Higher dots per inch means smaller pixels and greater clarity. To experiment with different densities, tap the Density slider, then enter a new value and tap the checkmark.

Works with >> 4.0.3 and up >> Difficulty Easy

Optimise battery with CPU Spy Reloaded

Use this app on your rooted device to get more control over the energy your CPU is using

CPU Spy Reloaded Free Monitor is a slick looking app that hides a secret purpose. On rooted devices, it shows you which apps are using wake locks. These essentially enable your phone to pop out of deep sleep mode when it's locked and then use up large chunks of your power, especially if they're not being used properly. While the app doesn't contain any tools to get rid of the offending apps, it will give you

an idea about which services on your device are stealing lots of your precious battery juice. You can then decide whether to delete the worst offenders. You'll need a basic understanding of what goes on under your Android's bonnet to make the most of the app, but a quick Google search should ensure that you're not trying to delete anything that's essential to your phone actually turning on.



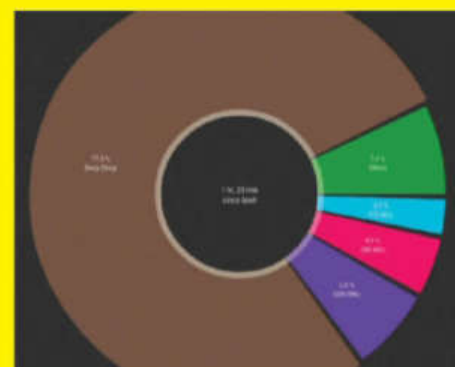
1 Grab the app

First up, head to the Google Play store and download the CPU Spy Reloaded Free Monitor app. Once it's installed, you'll be asked if you want to give it root access. Enable it and you will then be taken to a screen that displays a graph of your device's CPU usage.



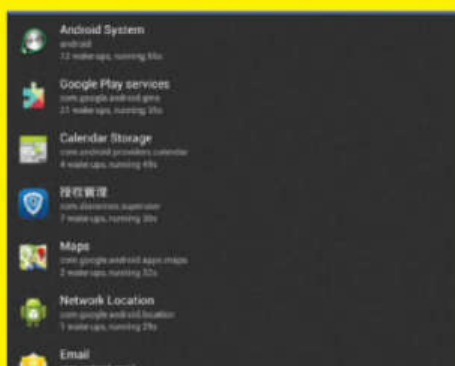
2 What does it mean?

The graph, which you can view as either a bar chart or a pie chart, shows you how much time your CPU spends running at different states. The more power an application needs, the higher state your CPU will run at and the more battery power it will use.



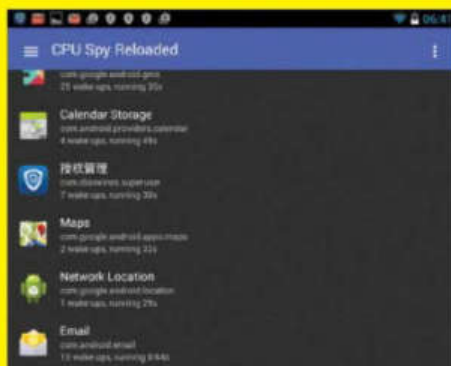
3 Deep Sleep

The section we're most interested in is the one marked Deep Sleep. This is when your screen is turned off. It should be around the 60% mark. If it's a lot less than this number, then it is a decent bet it could be the wake-lock activity that's sucking your juice.



4 Wake locks

Tap the menu button in the top right-hand corner of the screen and then tap on the Wake Locks option. This will show you which apps have been using the most wake locks. Some will need them set up, such as your email app or your system settings.



5 Check the list

However, you'll also find some apps are using wake locks that you have forgotten you installed. It is these that are going to be leeching the most of your power. Tapping on them from the list will take you to their settings page so that you can delete them.



6 Tweak settings

Also in the menu, you'll find some settings options that let you play around with the look and feel of the app. There is an in-depth description of your device as well. Tapping the button in the top-right corner will take you to a detailed online help section too.

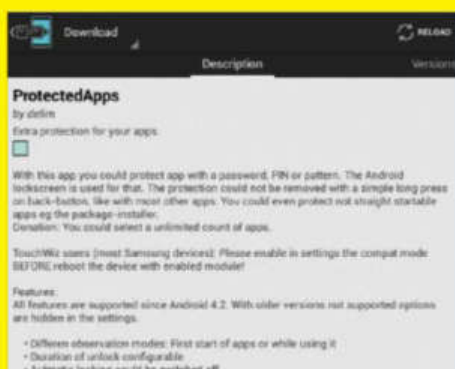
Works with » Android 2.3.3 and up » Difficulty Easy

Lock and protect apps with ProtectedApps

Use this Xposed module to add an extra layer of security to sensitive apps

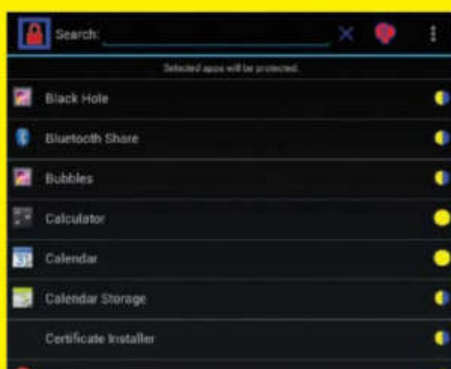
In this tutorial, we're going to show you how to download and use an Xposed Framework module called **ProtectedApps**. It's far from being the best-looking addition to Xposed there has ever been. However, it does bring some really useful functionality that will let you add an extra layer of security to any apps you have installed on your device. It's a great way to make sure your sensitive information is protected and, if you have already got

the hang of the Xposed Framework, getting it set up will be a doddle. The menus of the module itself can be a little confusing at times, but we will walk you through them step-by-step to avoid confusion and ensure that you're not making any mistakes. Once you know how to protect one app, you'll be able to protect as many as you like easily. You'll just need your device for this one, so when you're ready, head to step one to begin the tutorial.



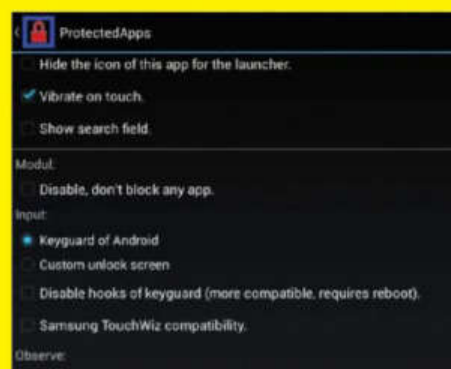
1 Get the module

First you'll need to download the module. You can get it from the Xposed Repository by pointing your browser at this link goo.gl/mTCoaZ. When it has downloaded, install it in the same way you would any other Xposed module, then check it on the Framework and reboot.



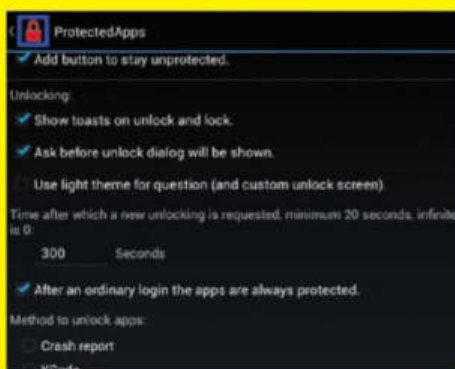
2 The big list

When everything is installed, the app will ask you to grant it administrator privileges. When you've done that, you'll see a big list of the apps you have installed on your device. Select one you would like to protect and then open the Settings with the menu button.



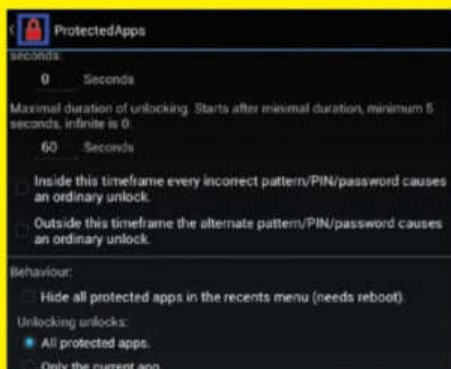
3 The settings

First, you'll want to choose how to protect your apps. Select 'Custom unlock screen' from the list. This will let you set one of a number of different protections for your app. Now scroll further down the list to choose the style of protection it should use.



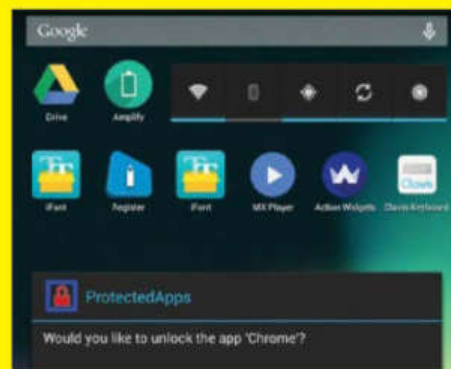
4 How to do it

There are a number of options here, ranging from patterns, passwords, PINs and even slightly more devious ways of unlocking your app. Choose the one you would like to use and then tap the button at the bottom of the choices to get it all set up.



5 Some more tweaks

There are a couple more tweaks you can make now. You can change the behaviour of the apps you're protecting so that they don't show up in your recently opened list. You can also set a variety of other options so that your apps are protected in just the right way.



6 Hey presto!

The next time you open the app you have selected, you'll be prompted to use the security you chose. You can set security in bulk or tailor it to individual apps. The colour codes next to the apps represent when and why they'll be opened, letting you know which need protection.

Special offer for readers in **North America**



4 issues FREE

When you subscribe*

FREE
resource
downloads
every
issue

*“The leading magazine
dedicated to the
world’s most
popular mobile OS”*



Order hotline **+ 44 (0) 1795 414 972**
Online at **www.imaginesubs.co.uk/and**

*Terms and conditions This is a US subscription offer. You will actually be charged £75 sterling for an annual subscription. This is equivalent to \$112 at the time of writing, exchange rate may vary. 4 free issues refers to the USA newsstand price of \$12.50 for 13 issues being \$162.50, compared with \$112 for a subscription. Your subscription starts from the next available issue and will run for 13 issues. This offer expires 30 November 2015.

Quote
USA
for this
exclusive
offer!

OnePlus 2

OnePlus scored 5/5 for its first device – can it repeat the feat with the sequel?

With the release of its first device, OnePlus shook up the Android phone market. With its unorthodox – and often controversial – marketing, they managed to create a cult following with effectively no marketing budget at all. Of course, all of that would not be worth nothing if the product itself was poor quality, but the OnePlus One really delivered. A mid-range price with top-tier specs and Cyanogen software proved a recipe for success here, in spite of the rather arduous invite process.

Things are both the same and different for the OnePlus 2. The price is still extremely competitive amongst other flagships, but with the Cyanogen relationship having descended into a bitter war of words, OnePlus has instead chosen to create its own software build for this handset. The specification sheet, while still very high-end, has a few notable omissions that may cause buyers some concern.

The OnePlus 2 looks and feels quite different to the original, yet still maintains a family resemblance. This is most obvious on the back cover that has the same sandstone-grey finish. This makes the device unique to hold, very grippy against drops and provides a much higher-quality impression than glossy plastic. For this generation, OnePlus has made the back panel easier to change, with additional StyleSwap covers offering bamboo, rosewood, black apricot and kevlar finishes, should the sandstone not be to your taste. The SIM slot (actually, there are two – the device has dual SIM support) has migrated from a tray on the edge of the device to the back. There is still no microSD slot.

The OnePlus 2 oozes quality. The metal edge around the device uses a grey magnesium alloy, which is bevelled at the top, subtly echoing the silver trim around the screen on the original device. The volume buttons and power button on the right of the device also feel metallic and click convincingly. The speaker holes at the bottom of the device are beautifully drilled.

On the left hand-side of the device, you will find a feature that is unique to Android devices, but an inspired inclusion: a three-position switch to toggle between the three Lollipop-notification modes. Functioning in a top-to-bottom plane, rather than front-to-back as you would find on the iPhone, the switch itself has a textured finish and is a joy to operate. We suspect that after having this feature for a while, you won't want to return to a device without it!

On the front of the device, which is black and unadorned with any logos, you'll find the front-facing camera, an RGB notification LED, a fingerprint reader/home button flanked by blue-backlit configurable capacitive buttons and the Gorilla Glass 4, 5.5-inch 1080p screen.

Tune the audio

OnePlus includes an audio tuner in partnership with MaxxAudio. The tuner lets you configure different settings for your music, movie and gaming modes. It also lets you select from a number of different presets, or just click and drag the sliders yourself

SwiftKey is preloaded

Both SwiftKey and Google Keyboard come preloaded on the OnePlus 2 and the user is prompted to choose their preference during initial setup. The setup also includes configuring the innovative gesture controls, which enable you to perform predefined functions when the display is off

The Shelf homescreen

The stock OnePlus launcher includes Shelf, which can be accessed by sweeping right from the main homescreen. This will show the weather at your current location, your frequent contacts and regularly used applications. Other widgets can also be placed on Shelf if desired

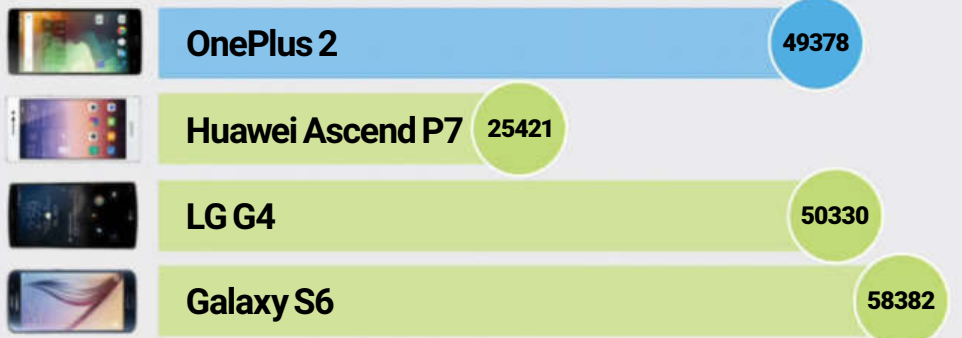
Swap the buttons

If you like your buttons in the Samsung-retro reverse order (recent/home/back), then there is an option in the software to opt for that too, whether you are using the hardware capacitive buttons or the onscreen buttons. There is also the option to disable the hardware-button backlights



Performance compared

Though better than the Huawei Ascend P7, the OnePlus 2 still lags behind the S6



OnePlus has elected not to switch to a QHD screen for this generation. From a performance and battery perspective, retaining a FHD screen is a good decision, with barely any noticeable quality difference when viewed alongside its higher-resolution peers.

At the heart of the OnePlus 2 beats a Snapdragon 810 octa-core processor. Qualcomm's current flagship has taken a lot of heat (pun intended) regarding its issues with both temperature and battery life. OnePlus looks to mitigate both of these complaints by under-clocking the CPU. On the specification sheet, the maximum clock speed is listed as 1.8GHz, however, we are seeing a max speed of 1.56GHz in our tests (this is of course susceptible to change in future software releases). Regardless of what it is doing, it does work. We have no complaints about temperature, even in the most demanding of situations, and when in use it always feels smooth and responsive.

Two versions of the phone will be available – a 64GB model at launch, which has a very generous 4GB RAM, and a 16GB model following later with a still ample 3GB RAM. From a connectivity perspective, the OnePlus 2 ticks almost all of the right boxes – support for all the UK's LTE bands (if you buy a European model, so beware imports of the Chinese version), dual-band Wi-Fi and Bluetooth 4.1, but there's no support for NFC. This may seem strange on a device with flagship-specs, but OnePlus says that research showed it was a rarely used feature on

the original device. Should Google launch an NFC-based payment service in the future, OnePlus 2 users will be very disappointed to be left out in the cold. A puzzling decision.

One of the headline features of the OnePlus 2, is the inclusion of USB Type-C port, the new connector that we'll inevitably see coming to all devices over the coming year. One of the key benefits of the Type-C is the fact that it's reversible, so no more trying to plug your charging cable in upside down. Another key upgrade is support for USB 3.0, however, this is not included on the OnePlus 2 – the connector runs at USB 2.0 speeds. This is not a big issue except for those who regularly want to transfer large amounts of data. But what is a problem, is that the connector on the OnePlus 2 doesn't support Qualcomm Quick Charge, something that we've come to take for granted on recent devices, to enable a quick topping-up of the battery during the day. We've found the phone takes up to three-and-a-half hours to charge.

The OnePlus 2 software build is called OxygenOS (version 2), based on Android 5.1. OxygenOS is very close to stock Android with a number of thoughtful enhancements and additions – hopefully OnePlus can do a good job of releasing version updates quickly.

Where stock Android is lacking, and where OxygenOS is a considerable improvement, is in the area of customisation. The OS supports customisable icon packs, includes a dark theme with customisable colour accents (although strangely you can't change the accent colour on

Dual SIM support

The OnePlus 2 supports dual active SIM cards – the primary card has LTE connectivity, the second card is limited to a 2G connection. GSM functionality is not available for dual SIMs on Chinese import models

USB Type-C

The USB Type-C connector might be the future, but currently you might find it more of an inconvenience if all of your existing chargers are microUSB. However, OnePlus does sell an adaptor that you can put on your keyring



the light theme) and has power-user favourites, such as multiple battery icon/percentage options, granular permissions control and extended button customisation. By default, the buttons below the screen function are back, home and recent, but these can be changed. Actions for long-press and double-click can be added, or they can even be disabled completely in favour of Nexus-style on-screen buttons. Gesture-based app launching, even when the screen is off, is carried over from the OnePlus One, as is double-tap to wake up.

The fingerprint reader on the OnePlus 2 is a little different to that on the iPhone or the Galaxy S6, in that while it is also a home button, there is no physical click. Despite this, it can still be used to wake the device from sleep – simply place your finger on it, your fingerprint is recognised and the device then wakes up to your homescreen. Simple.

Actual fingerprint reading on the button is extremely good. Very rarely does it not recognise your fingerprint as your own and it also works from all angles. However, the actual reliability of the button, for purposes aside from reading your fingerprint, seems to be somewhat variable. Some users are reporting that occasionally, perhaps once or twice in every ten uses, it fails to recognise that you are touching the button at all, requiring you to remove and replace your finger. This is a minor annoyance when waking the device, but very frustrating when you are using the device and the reader is functioning as a simple home button. At the time of writing, OnePlus says it is “tuning the sensitivity of the

fingerprint reader”, so hopefully this will become a nonissue. Nevertheless, it does appear at this stage, although some devices work more reliably than others.

The OnePlus One used a Sony camera sensor, but image quality overall was disappointing. One of the biggest upgrades to the OnePlus 2 is in this department, with the inclusion of an improved 13MP camera with 1.3um pixels, a f2.0 six part-lens, optical image stabilisation and a laser autofocus system, as seen on LG devices. Together with a dual-LED flash, the upgrade makes for hugely improved pictures. 4K video recording is also supported and a 5MP camera on the front means you’ll get good-looking selfies too. When it comes to raw image quality, the OnePlus 2 can’t quite match the heady heights of the best Android cameras, found on the Galaxy S6 and G4, but it is very close. Where the experience is disappointing, is on the software side. The camera app is extremely basic with a limited number of modes and, unlike its competitors, it doesn’t offer an auto-HDR mode. Near-complete Lollipop Camera2 API support (RAW output isn’t available) at least means alternative apps, such as Manual Camera or Camera FV-5, are an option.

The OnePlus One was a great phone at any price. The OnePlus 2 is a very good phone, but at this price. Unfortunately, it’s not worthy of a top score. The lack of NFC we can probably overlook, but the current doubt and problems around the sensitivity of the fingerprint reader/home button together with the lack of fast-charging mean that the device falls short of perfection. ■



Information OnePlus 2

£289/\$389

» More information oneplus.net/2
» Supplied by **OnePlus**



Technical specs

» Operating system	OxygenOS (Android 5.1)
» Processor	64-bit Qualcomm Snapdragon 810 processor with 1.8GHz octa-core CPUs
» Memory	64GB storage/4GB RAM or 16GB storage/ 3GB RAM
» Dimensions	151.8 x 74.9 x 9.85 mm
» Weight	175g
» Display size	5.5-inch
» Display resolution	1920 x 1080 pixels (401 ppi)
» Front camera	5MP
» Rear camera	13MP (f/2.0)
» Connectivity	Wi-Fi 802.11ac, Bluetooth 4.1

Battery life

The 3300mAh battery means you’ll get a full day out of your OnePlus 2, which keeps it in line with other Snapdragon 810 flagships

Good for

Value

While the OnePlus 2 isn’t flawless, there’s no denying that it remains very good value for money

Taking pictures

The camera on the OnePlus 2 outperforms other devices available for the same price

Bad for

Battery

No removable battery or fast-charging means you need to be sure the battery life meets your needs

Storage

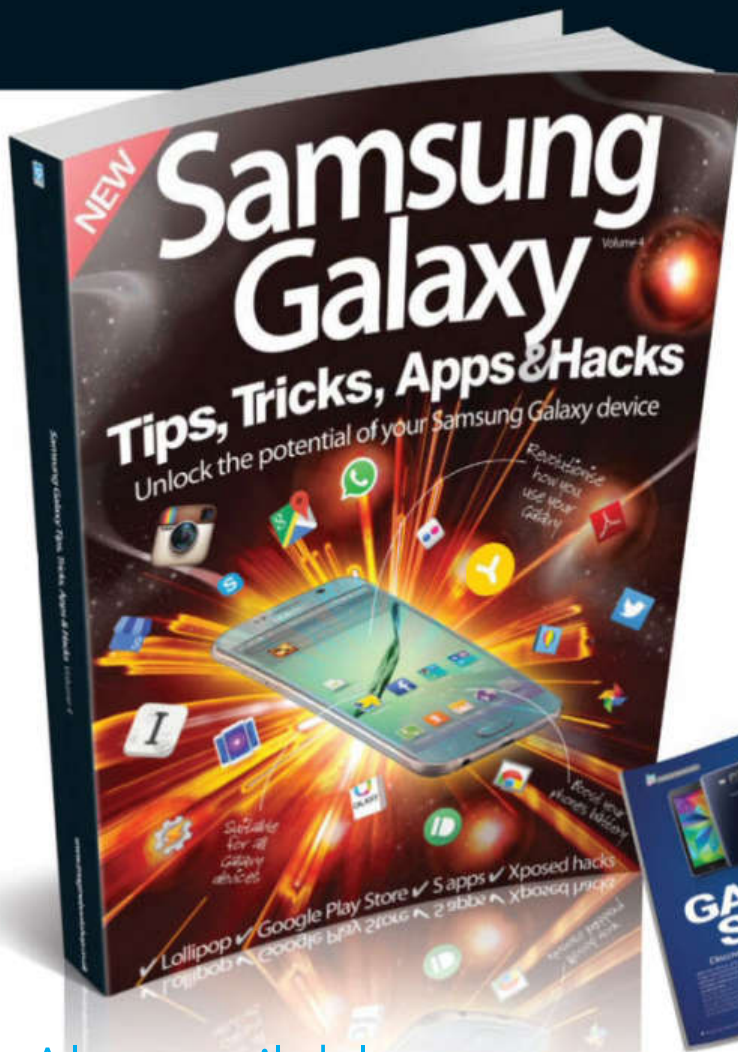
The 16GB model will fill up quickly and with no microSD expansion, the 64GB is a better investment

Verdict

The OnePlus 2 might not be the ‘2016 flagship killer’ it has claimed to be, but it remains an improvement on the OnePlus One model



From the makers of **Android** magazine



Samsung Galaxy

Tips, Tricks, Apps & Hacks

Unlock the true potential of your Samsung device with this comprehensive guide to the Galaxy. Master the built-in features, download the best apps and hack your device to transform the way it works – all this and more is covered right here.



Also available...



A world of content at your fingertips

Whether you love gaming, history, animals, photography, Photoshop, sci-fi or anything in between, every magazine and bookazine from Imagine Publishing is packed with expert advice and fascinating facts.



BUY YOUR COPY TODAY

Print edition available at www.imagineshop.co.uk

Digital edition available at www.greatdigitalmags.com



Moto X Play

Motorola's new mid-ranger with an impressive battery life and a stunning 21MP camera is almost a flagship, but lacks real wow factor

The Moto X Play was a surprise announcement in this year's Motorola line-up, a brand-new handset sandwiched between the top-end Moto X Style and third generation of the popular budget buy Moto G. However, the Moto X Play is more than just a mid-range option for those that want a better screen and faster performance than what the Moto G offers, but can't afford the Moto X Style (or Pure Edition, as it's known in the US). The Moto X Play houses a gigantic 3,630mAh battery that Motorola says will last two days, which is much larger than the Style's own 3,000mAh power cell. It also boasts a 21MP rear camera, double the size of the camera housed on the new iPhone and, more importantly, it helps distinguish it from other reasonably priced phones like the OnePlus 2, Alcatel OneTouch Idol 3 and Honor 6 Plus.

Simplified design

Starting at £279, the Moto X Play can't afford to offer the same premium design details as the £359.99 Moto X Style, which has a metal rim and comes with a choice of rear case choices including genuine leather and wooden backs. However, the Play feels more sturdy and solidly built than the Moto G (2015). This may be in part due to its 148 x 75mm size, but it also has a toughened trim that glistens so it could pass for aluminium and a rubberised backplate with a criss-cross pattern for better grip. Between this and the Gorilla Glass 3 screen, we're confident that you could drop this phone without easily scratching it. Sadly though, the Play lacks the IPX7 rating that the Moto G (2015) has, which means you can submerge the budget handset in a cool glass of water for 30 minutes without doing any damage (don't believe us? See our YouTube video). Instead, it has a so-called 'nano-coating' that protects the phone from spills, splashes and light rain.

From the front, the Moto X Play will be recognisable as a Motorola to anyone who has been familiar with its phones for the last two or three years. As well as an almost edge-to-edge 5.5-inch screen, the display is top and tailed by two front-facing speakers and a loudspeaker. The selfie camera in the top-right corner looks like little more than a pinprick, but boasts an enviable 5MP lens.

The Play also has those typically Motorola finishing touches that always make its handsets so popular. For instance, the power button on the right-hand side is lightly bevelled so you don't confuse it with the volume key right beneath it. The headphone jack is also placed on the top for faster plug-and-play when you have your phone in your pocket. For the first time, you'll also find a slot on the top that houses both the microSD

Brilliant display

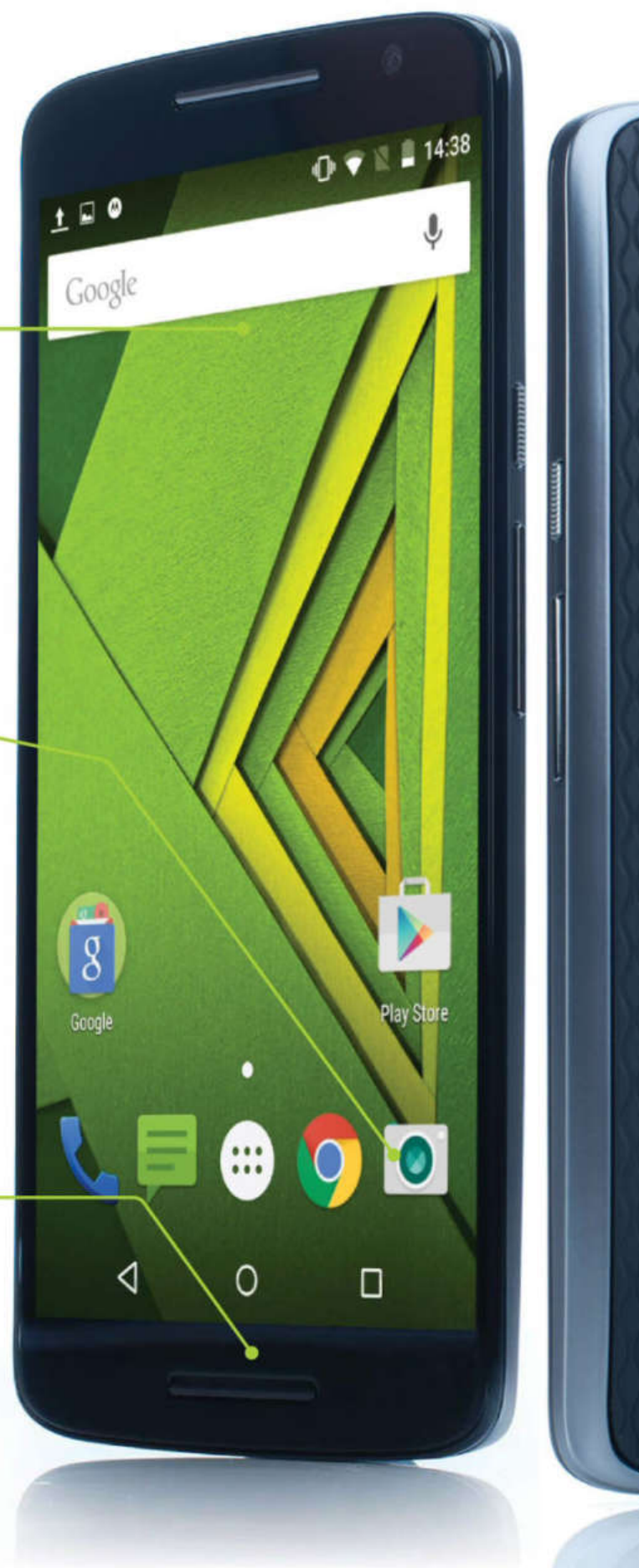
The Moto X Play has a 5.5-inch 1080 IPS LCD screen that is vivid with colour and rich with detail when watching HD videos. You can also switch between Normal and Vivid modes for an even more enhanced display

Flick for photos

One of the Moto X Play's few unique software features is that you can set it to automatically open the camera when you twist your wrist twice. While this was highly responsive, we didn't find it any faster than swiping the camera icon from the lockscreen

Expand your storage

The £279 model Moto X Play has 16GB, however if you want the phone to live up to its name and be able to play lots of games and movies, you may want to pay £40 more for the 32GB model. Alternatively, make use of that 128GB microSD support



High-end camera

Boasting a 21MP rear camera and f.2.0 aperture, the Moto X Play is one of the first phones with Sony's new IMX230 sensor. This includes 192-point phase detection autofocus points, which is the same feature you would find on high-end DSLR cameras

card and your nano-SIM. While this provides easy access, it's also a side effect of the unremoveable battery, but we'll come back to that later.

If this all sounds overly functional, rest assured that there is still room to express yourself. Just as you can customise the look of your Moto X Style, Moto G (2015) or even the Moto 360 smartwatch before you buy, you can pick and choose how your Moto X Play looks before you buy using Moto Maker. However, Motorola's online design studio limits the Play to a choice of black and white fronts, but has the option of 14 different vibrantly-coloured backs and seven accent tones that affect the colour of the speaker grilles and the rear camera.

Souped-up screen

Motorola used to opt for AMOLED displays, both the Moto G (2015) and Moto X Play have IPS LCD screens. There are some that would call this a step down, but the Play's display is sharp, super bright and renders colours with high accuracy. While the latest Moto G only boasts a 5-inch 720p screen, the Play benefits from a 1080p full HD display with a pixel density of 403 ppi. Predictably, the Moto X Style takes it one step further with a Quad HD 2560 x 1440 screen like the Samsung Galaxy S6, but the Moto X Play still has similar specifications to the flagship HTC One M9 and Sony Xperia Z3+, but at half the price. To the naked eye, we found the Play could easily give them a good run for their money. HD videos, games and text all look crisp, while colours are both rich and vibrant.

If this wasn't enough, the Moto X Play even has a choice of colour modes hidden in the display settings, enabling you to tailor the display to your needs. The default, Normal, is intended to display realistic colour, while Vibrant enhances with added colour and saturation. Having tried both, we ultimately switched back to Normal mode as we found the increased saturation a bit too much when watching videos and we preferred them with more accurate colours.

The large screen ensures that viewing videos and playing games aren't a headache for the user. The LCD display also boasts good viewing angles if you want to watch videos with your friends. Screen brightness was also crisp enough that at no point did we need to turn it above the 50 per cent mark.

No extra battery needed

One of the biggest shifts we've seen in this generation's Android phones is a move away from removable batteries as the phones embrace full-metal unibodies for sleeker design, most notably on the Samsung Galaxy S6. The Moto X Play's back does pop off with a slight jerk, but this is purely for aesthetic purposes, so that you can easily change those brightly coloured covers. The 3,630mAh cell is fixed in place and can't be replaced. However, while we have been critical of this in the past, the Moto X Play is the first phone where we didn't feel the need to have an external battery.

3,630mAh is much bigger than the average 2,000 plus mAh battery that most phones have, but during our testing, we didn't find the phone lived up to Motorola's claims that it would last two days. Instead we found it lasted only a day and half with mixed use. Also, when spending the day playing games and watching lots of videos over YouTube (it's a hard life being a tech journo, but someone has to do it), it still lasted around 13 hours. This is a very impressive level of stamina and better than any similarly priced phones we have tried on the market. Best of all, the Moto X Play offers fast-charging. It's so called TurboPower charging will add an extra eight hours of battery juice after just a 15 minute charge.

Despite having an eight-core processor, the 1.7GHz Qualcomm Snapdragon 615 CPU doesn't benchmark anywhere near as highly as the Snapdragon 810 found in the Xperia Z3+, HTC One M9 and, crucially, the similarly priced OnePlus 2. In AnTuTu, the Play scored 27,390 just beneath the original HTC One and LG G3. In

Easy access microSD slot

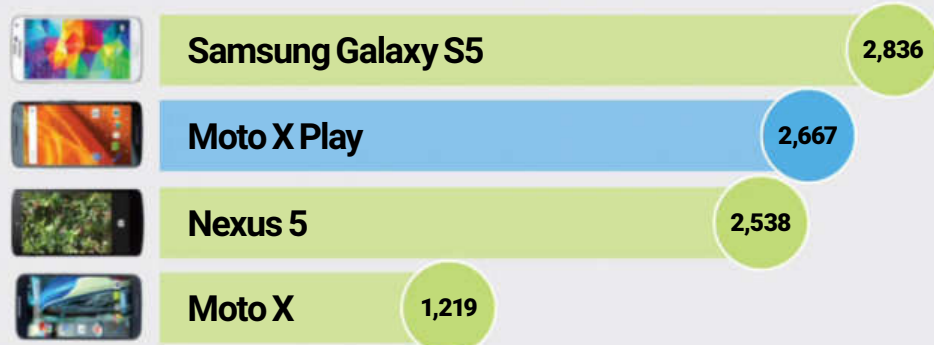
With the Moto X Play's fixed battery, there is no slot for your microSD card under the hood. Instead both your nano-SIM and SD card fit into a slot placed on the top of the phone, found next to the headphone jack

Customise the look

While the Moto X Play doesn't come in as varied styles as the X Style, you can choose from 14 different coloured back cases and seven different accent tones for the speaker grille and camera

Performance compared

The Moto X Play beats both the Nexus 5 and the Moto X, but lags behind the Galaxy S5



Geekbench 3, it scored 2,650 on the multi-core test, a little more than the Nexus 5's 2,538, but a little beneath the Samsung Galaxy S5's 2,836. However, in our real-world test, it did a very good job: when playing even the most intensive 3D console-quality games, the Moto X Play worked seamlessly. The only lag we really experienced in the test was a momentary glitch when moving between areas of the phone and loading the browser.

A high-end shooter

Another hardware feature that doesn't disappoint is the Moto X Play's rear camera. Packing 21MP, this is way beyond the usual 13MP cameras you would find on similarly priced phones. The results were very good, rich in detail with high colour accuracy and saturation; however, the camera works better with still shots. Any sort of movement seemed to throw off the sensor. Despite the f/2.0 aperture and dual flash, we did find that low-light shots were still poor and not even the Night Mode could produce anything but dull, grainy shots. If you enjoy shooting videos, the Moto X Play captures 1080p videos and also has an amusing slow motion mode.

Taking pictures is simple. You can open the camera just by twisting your wrist twice and take a picture with a tap anywhere on screen. Despite lacking any sort of laser auto-focus system like on the OnePlus 2 or LG G4, the focusing was quick to lock onto our target. An auto HDR mode toggles on and off depending on your surroundings, so you don't have to worry about turning it off or accidentally taking blown-out or overly saturated images. However, more manual controls would have been beneficial overall.

Lollipop to Marshmallow

In terms of software, the Moto X Play is like any other Motorola in that it runs almost stock Android. The added benefit of this is that the Moto X Play ships with Android Lollipop 5.1.1, but it will be right behind the Nexus 6 for the Android Marshmallow update.

However, in addition to the extra display settings to adjust colour, the Moto X Play does include a few proprietary apps. Most are forgettable: Migrate makes it easy to transfer contacts from your old phone, Gallery offers a simple way to view your photos if you find Google Photos overly-complicated or invasive and Connect allows you to integrate with your other Motorola products, including the Moto 360 and Moto Pulse headphones.

However, Moto Assist is a useful automation tool for setting Do Not Disturb mode during work and night-time hours. A feature called Active Display, which was also on the last generation of Motos, also displays useful information on your screen when it's sleeping, so you don't have to waste time toggling the power button on and off. We've said it before and we'll say it again, this is a feature more Android phones need.

Verdict

The Moto X Play is one of the best phones to consider if you want a high-quality phone without paying a high price. The camera is unrivalled at this price point and with its long-life battery and fast-charging, this is the first phone to convince us that the removable battery is a thing of the past. The big bright screen also impressed us and we continue to love Motorola's subtle tweak on stock Android.

However, given the Moto Maker customisation options for the Moto X Style and the last-gen Moto X, it would have been nice if the Moto X Play's design had been, well, more playful. Instead, it risks looking like an oversized Moto G. The core specifications – the processor, storage and RAM – are only mediocre. It also lacks a fingerprint scanner, which is going to date this device quickly once Android Marshmallow and Android Pay arrive. If you're sitting on the fence between this and a OnePlus 2, we would say that the Motorola is likely to be the more reliable of the two, not to mention easier to buy without having to wait for an invite. However, the OnePlus 2 may be more rewarding overall. ■

Information

Moto X Play

£279/\$NA

» More information motorola.co.uk
» Supplied by Motorola

Best deal

£21.99 per month (contract)	£22 per month (contract)	£23.50 per month (contract)

Technical specs

» Operating system	Android 5.1.1 Lollipop
» Processor	Qualcomm Snapdragon 615 1.7GHz octa-core
» Memory	16GB storage/2GB RAM
» Dimensions	148 x 75 x 8.9-10.9 mm
» Weight	169g
» Display size	5.5-inch
» Display resolution	1080p, 403 ppi
» Front camera	21MP (f/2.0 aperture)
» Rear camera	5MP
» Connectivity	4G LTE, Bluetooth 4.0, Wi-Fi 802.11 a/g/b/n, NFC
» Expansion slot	microSD (up to 128GB)

Battery life

Even if it doesn't live up to Motorola's two-day claims, this is still one of the longest lasting phone batteries we have seen on the market

Good for

Lasting the weekend

While it won't last the full two days Motorola promises, the Play still goes the distance and charges quickly

Taking well-lit pictures

One of the first phones to boast the MX230 camera sensor, you won't get a better camera phone for this price

Bad for

Showing off to friends

Even if you customise the look on Moto Maker before you buy, this handset's design lacks the wow factor

Buying in the US

If you're reading this in the US, you're out of luck. The Moto X Play is currently only available in Europe and Canada

Verdict

With a fantastic display, top camera and big battery, the Moto X Play is the most reliable midranger on the market even without the wow factor



Information

Sony Xperia M4 Aqua

£199/\$299

» More information www.sonymobile.com/gb
» Supplied by Sony Mobile

Best deal



£19
per month
(contract)



£21.99
per month
(contract)



£22
per month
(contract)

Technical specs

» Operating system.....	Android 5.0 Lollipop
» Processor.....	Snapdragon 615, quad-core 1.5GHz & quad-core 1GHz (Octa-core)
» Memory.....	8GB storage/2GB RAM
» Dimensions.....	145.5 x 72.6 x 7.3mm
» Weight.....	136g
» Display size.....	Five-inch
» Display resolution.....	720 x 1280 pixels (294 ppi)
» Front camera.....	5MP
» Rear camera.....	13MP
» Networks.....	3G, 4G, DLNA, Bluetooth 4.1
» Expansion slot.....	microSD (up to 128GB)

Battery life



It's hard to fault the 2400mAh offering here, as it delivers on Sony's two-day battery life promise

Good for

Octa-core processor

The added power boost makes moving around the smartphone an absolute breeze

Size

While the five-inch display does make the device look quite large, it's still remarkably lightweight

Bad for

Pure plastic

If you are a fan of Sony's traditional sleek metal-bodied devices, then you're out of luck here

Image clarity

Everyday camera shots are decent enough, but there's no real sparkle for advanced users

Verdict

It doesn't have the high-quality finish of the Xperia Z3+, but it's certainly one of Sony's better devices



Make a splash

One of the benefits of being able to use the M4 underwater is that you can take breathtaking photos. Image quality is generally decent, due to the 13MP camera

Monster battery life

Another big plus with the M4, is the addition of two-day battery life, with the help of a 2400mAh lithium battery built in. We recommend Stamina mode when battery is on the low side

High-end power

You'll instantly notice the power of an octa-core processor as soon as you begin moving around the device. It generally goes above and beyond what you'd normally expect at this price range

No metal allowed here

One of the biggest cutbacks between the M4 and Sony's higher-end handsets is the lack of a metal body. It's fully plastic here, which doesn't have the same aesthetic qualities, but it keeps the handset light

Sony Xperia M4 Aqua

Sony has generally struggled in the mid-range market, but is the M4 Aqua about to change its fortunes?

One of the things you can guarantee with Sony, is that once it has found a good idea it usually sticks with it for sometime. The Xperia M4 Aqua follows the same design ethic as we've seen from the likes of the Z3, Z3 Compact and Z3+, without changing a whole lot along the way. There's a lack of metal body, which is instantly noticeable when you realise just how light the device is, but you will be hard pressed to find any other major differences.

There's a standard array of ports around the sides of the device, with specialised covers across each port to help make the device both water and dust proof. The waterproof coating is ideal for taking underwater snaps, if that's your thing, as the 13MP camera takes colourful and vivid photos. Shooting in low light is decent as well, but it perhaps lacks the overall image clarity we normally find in Sony's higher-end offerings.

Aside from the plastic build, the other prominent cutback here is with the display. Viewing angles are superb, but the five-inch offering on the M4 often leaves colours looking washed-out. It's a noticeable problem as you begin to move around the M4 as some of the colourful animations brought by Android 5.0 don't

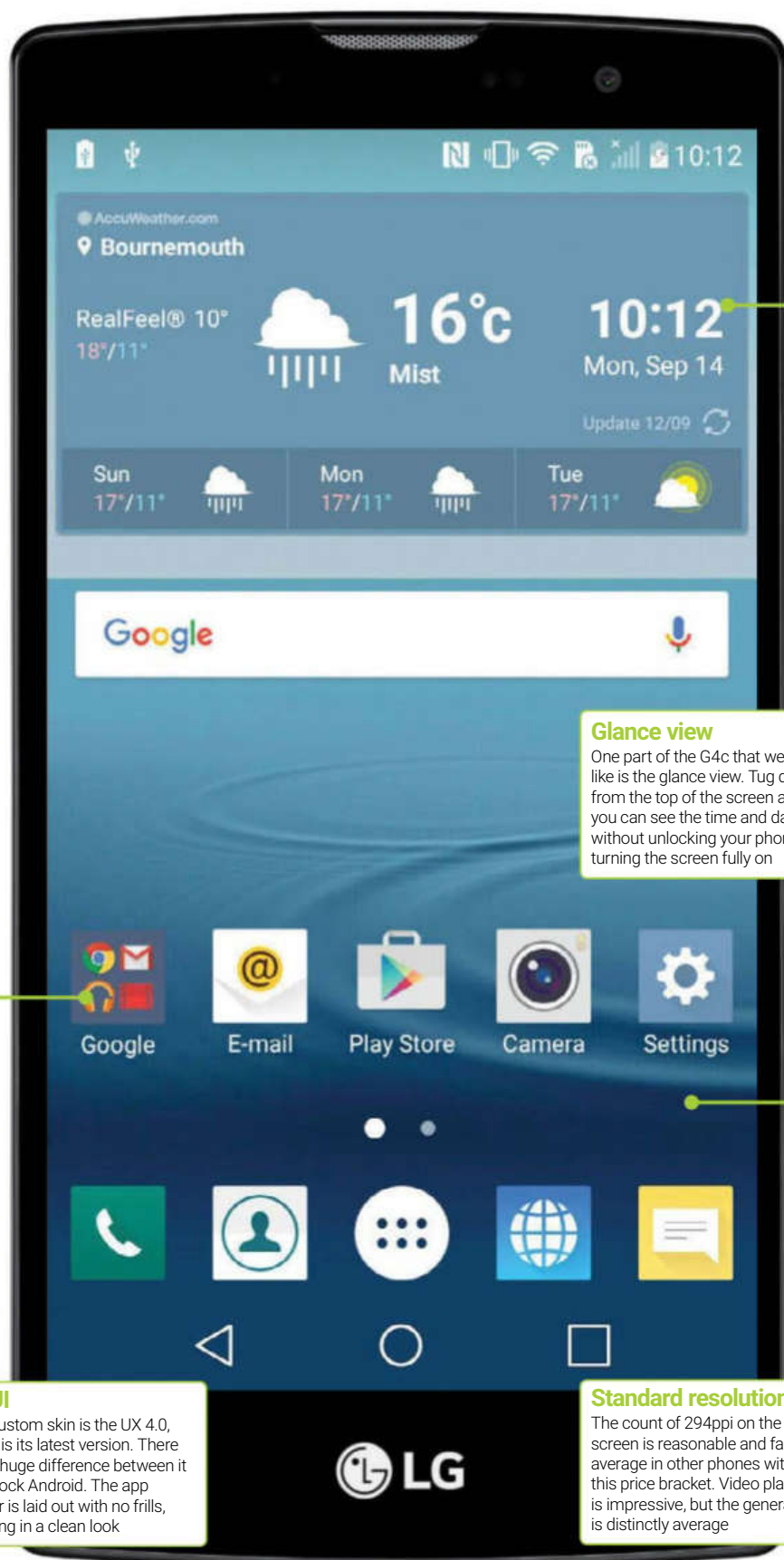
look overly good. While we're on the topic of Android 5.0, Sony has always done a good job at finding a good balance between both its own custom skin and vanilla Android on its devices – this trend continues well on the M4.

What may surprise most people when handling the M4, is just how speedy it is. It cuts through anything you throw at it, primarily due to the 2GB RAM and octa-core processor. There's an argument that an octa-core processor is generally overkill on a mid-range smartphone, but the M4 is on the large side, so the extra power is welcome. The added power is also fairly battery friendly and while many will scoff at Sony's claims of a two-day battery life, the 2400mAh offering is definitely capable of it.

If the mantra 'if it ain't broken, don't fix it' was a company, it would wholeheartedly be Sony. The M4 Aqua doesn't really bring anything new to the table. Instead, it just refines all of the key elements of a great mid-range device. Sure we'd like to get rid of the plastic build and add a 1080p display, but for the price, this is one of Sony's best efforts of 2015 and we wholeheartedly recommend it if the Xperia Z3+ is a little too rich for your tastes. ■

LG G4c

Does LG's mid-ranger live up to its illustrious name?



Glance view

One part of the G4c that we really like is the glance view. Tug down from the top of the screen and you can see the time and date without unlocking your phone or turning the screen fully on

LG UI

LG's custom skin is the UX 4.0, which is its latest version. There isn't a huge difference between it and stock Android. The app drawer is laid out with no frills, resulting in a clean look

Standard resolution

The count of 294ppi on the G4c's screen is reasonable and fairly average in other phones within this price bracket. Video playback is impressive, but the general look is distinctly average

The LG G4 wowed us earlier this year so the G4c, set to be the more affordable version of the South Korean company's flagship device, had a lot to live up to.

The G4c has certainly taken a lot of its design inspiration from its big brother: full of gentle, slightly rounded edges, thin side bezels and that now very familiar LG curve. It looks extremely smart and from the front you would be forgiven for thinking that this is a premium handset. Flip it over and it still looks very stylish, sporting that silver criss-cross pattern that's found on the G4. However, while the latter uses premium metal in its design, the G4c has a soft, almost scratchy plastic that feels nowhere near as good. Nevertheless, plastic is the standard for phones in this price bracket so it's maybe a bit harsh to expect anything more.

As usual with LG, the power and volume buttons are on the back of the device, and as it is a five-inch model, all the buttons are comfortably within reach so that operating the phone is nice and easy. This means that the sides are button free, which fits really well with the G4c's clean design. It is sometimes a bit tricky to work out whether you are hitting the volume or power button, but in time this is something you would get used to.

The 1GB RAM and 8GB storage are both pretty disappointing figures. 2GB RAM and 16GB storage wouldn't have been a huge leap and would have made this phone much more desirable to the lower half of the mid-range market. Once all the preloaded apps are taken into consideration, you are left with a little over 2GB storage. The G4c has as much RAM as the latest Moto E and Moto G, but they are both significantly cheaper, while the ZTE Blade S6 has 2GB RAM and is noticeably faster. Transition times are a little on the slow side while webpages and videos take some time to load.

Otherwise, the specs stand up impressively. The Qualcomm Snapdragon 410 processor deals with tasks effectively and even when we put it through its paces with graphics-rich games, it didn't cause it to heat up too much. The screen is a 720p affair and, although it doesn't leap out

"Although it doesn't leap out as particularly stunning, it is quietly impressive"



3,000R curve

The curve on the G4c is the same as on Samsung's curved TVs and is said to provide the perfect viewing experience. The 3,000R means if the curve continued, the completed circle would have a 3,000mm radius

Rear speaker

LG has made a bit of a strange design choice by putting the 1W speaker on the back at the bottom, right where you would hold the phone. However, it does keep the front of the handset nice and clean

as particularly stunning, it is quietly impressive. The colour saturation is strong and lets you enjoy LG's bright and energetic UX 4.0.

The G4c's benchmark score was around the same as its Moto rivals, but RAM speed and operation was much lower. The difference was made up with the graphics, and we have to say that we were impressed with the quality of the G4c's animation and video playback.

The cameras on the back and front are 8MP and 5MP respectively, which again is reasonable.

They focus rapidly and take excellent quality photographs. Even when in the dark, the front-facing flash helps illuminate selfies and the flash on the rear also performs its job admirably. The camera app itself is quite disappointingly basic, and a few bells and whistles, such as beauty mode or in-app filters, would have given mobile photography enthusiasts much more to get excited about.

The LG G4c is right at the top end of a hotly contested market. The Moto G, ZTE Blade S6 and other offerings from Huawei, Xiaomi and OnePlus all come in cheaper than this handset, but offer much the same in terms of specifications and finish. The LG G4c needed to offer something different, and while it has a lot of positive points, it really hasn't done quite enough to make it worth the G4 name.

Shoot from anywhere

A now traditional feature of LG handsets is the ability to take a photo by tapping anywhere on the screen, meaning that you don't have to struggle to tap a tiny on-screen button when snapping a one-handed selfie

Information

LG G4c

£217/\$TBA

» More information lg.com
» Supplied by **Clove Technology**

Best deal



£17.50
per month
(contract)



£19.99
per month
(contract)



£21
per month
(contract)

Technical specs

- » Operating system **Android 5.0 Lollipop**
- » Processor **Qualcomm Snapdragon 410**
1.3GHz quad-core
- » Memory **8GB storage, 1GB RAM**
- » Dimensions **139.7 x 69.8 x 10.2mm**
- » Weight **136g**
- » Display size **5.0-inch**
- » Display resolution **720 x 1280 pixels (294ppi)**
- » Front camera **5MP**
- » Rear camera **8MP**
- » Connectivity **4G & Bluetooth**
- » Expansion slot **microSD up to 128GB**

Battery life



The 2,540 mAh battery keeps the G4c ticking over for a full day, possibly even more

Good for

Screen quality

The screen is very good quality for its price and videos can be viewed easily

Camera quality

Both cameras take high quality photos and the flash on both sides is handy

Bad for

Lacklustre design

There are cheaper phones out there that use better, higher quality materials than the G4c

RAM

The G4c only has 1GB RAM and it shows as it doesn't have the speed you need

Verdict

This is a good enough phone from LG, but we would suggest that you look elsewhere if you want more – it doesn't excite as much as its premium big brother



Wileyfox Swift

The Cyanogen-powered smartphone that's as fast as it sounds

Wileyfox is a brand new mobile phone manufacturer with a very different way of doing things. Its first two products, the Swift and the Storm, both run Cyanogen 12.1, which is a very popular Android fork. The two models are the first phones to be launched in Europe that have Cyanogen as their operating system. This means that those who want the extra freedom, security and customisation it offers can have it without having to root their handset.

The Swift was launched with the promise to disrupt the market and it really has a chance as Cyanogen has a raft of excellent features. While stock-Android users have to wait months between updates, Cyanogen is well known for regularly releasing patches, bug fixes and upgrades, so you will have the option of weekly upgrades to your handset. It comes with a PIN code lockscreen option that randomly mixes up the number on the pad, so you don't leave telltale fingerprint marks on your screen. This is a feature that you can get by downloading an app, but having it on your phone already is really useful. You can mix and match themes and have the homescreen you want in only a few clicks by customising your wallpaper, font and quick launch apps really easily. Android 6.0 Marshmallow is promising granular permissions when downloading apps, but that is something you can get in the Swift already, so you won't need to give a mobile game company access to all your messages just so you can waste a few minutes on an endless racing game.

The Swift also has TrueCaller pre-installed with over 1.7 billion numbers loaded onto the service, so you can see who is phoning you even if they're not in your contacts list. Couple this with Cyanogen's rapid turnaround on bug fixes and Cyanogen's own browser that reportedly loads webpages 1.69 times faster than Chrome, then you're getting an operating system that solves almost all Android woes in a single swipe.

It doesn't look particularly revolutionary and the backing is a strange, slightly grainy plastic. It feels secure in the hand, but certainly not premium and savings have clearly been made in this area. The battery too is a little smaller than we would have liked at just 2,500mAh, but at least it is removable and keeps both the weight and the thickness down. Beyond these disappointments, however, the Swift is a very nippy device. Wileyfox has partnered with Qualcomm to provide the 1.2GHz 64-bit quad-core Snapdragon 410 to power the phone.

Gorilla meets fox

The Swift's HD screen is protected by a layer of Gorilla Glass 3, so it should be able to suffer a few bumps and scratches. The five-inch, 1280 x 720 display has a reasonable screen resolution of 294ppi

Live Display

One of the other stock features of Cyanogen 12.1 is the Live Display. It reacts to the light and time of day to appropriately brighten or dim the screen, so you don't have to manually adjust it to avoid glare

4G connectivity

The Swift has 4G LTE connectivity, so you should comfortably be able to get great signal across a wide range. Wileyfox is currently only selling SIM-free phones, so you don't need to get tied down to a contract

Make it yours

One of the great benefits of using Cyanogen is that you can do near enough whatever you want with your phone's themes and wallpapers. You can mix and match the different elements and even more get added on a regular basis



Both the 13MP rear and 5MP front-facing cameras use Sony imaging sensors, producing excellent quality images apart from in very low light. It has 2GB RAM and 16GB storage that can be bumped up to 32GB with a microSD card. This is a step above the similarly priced LG Spirit 4G and even the Moto G 4G, which is generally seen as the budget phone standard bearer.

As with many phones in this price bracket, it comes with dual SIM capabilities, so no need to have separate work and personal phones anymore. On the personal side of things, there is a lot of fun to be had with the Swift. The sound

quality from the lossless, AudioFX speakers is excellent and music playback was rapid with no tinny sound at all. The camera is another area in which the Wileyfox team have had a bit of fun. You can swipe up or down to automatically add filters to the scene in front of you and the gallery is fully integrated with all of your various other media. This may sound cluttered, but it really is an intuitive feature that is easy to get used to.

Cyanogen may sound a little scary for the masses but if you look past the name, you will find a superb phone for an excellent price with only a few shortcuts taken. ■

Information

Wileyfox Swift

£129/\$TBA

» More information wileyfox.com
» Supplied by Wileyfox

Best deal



£9.50
per month
(contract)



£12.99
per month
(contract)



£13.17
per month
(contract)

Technical specs

- » Operating system..... Cyanogen 12.1
- » Processor Qualcomm Snapdragon 410 1.2GHz quad-core
- » Memory..... 16GB storage, 2GB RAM
- » Dimensions..... 141.15 x 71 x 9.37 mm
- » Weight..... 135g
- » Display size Five-inch
- » Display resolution..... 1280 x 720 pixels (294 ppi)
- » Front camera..... 5MP
- » Rear camera..... 13MP
- » Connectivity..... 4G LTE/Bluetooth
- » Expansion slot..... microSD (up to 32GB)

Battery life



The Swift runs off a 2,500mAh battery that will just about last you a day

Good for

Operating system

We really love the use of Cyanogen 12.1 in the phone as it offers improved security and great customisation options

Cameras

Both front and back cameras are sharp and quick to focus, while the dual flash helps too

Bad for

Substandard materials

It doesn't shout class and although it's easy to hold, the back cover feels slightly strange

Screen quality

The HD screen is a little low, Wileyfox could have upped the resolution to full HD

Verdict

The Swift is excellent value for money and good fun too. It matches its rivals in the market with only a few niggling frustrations

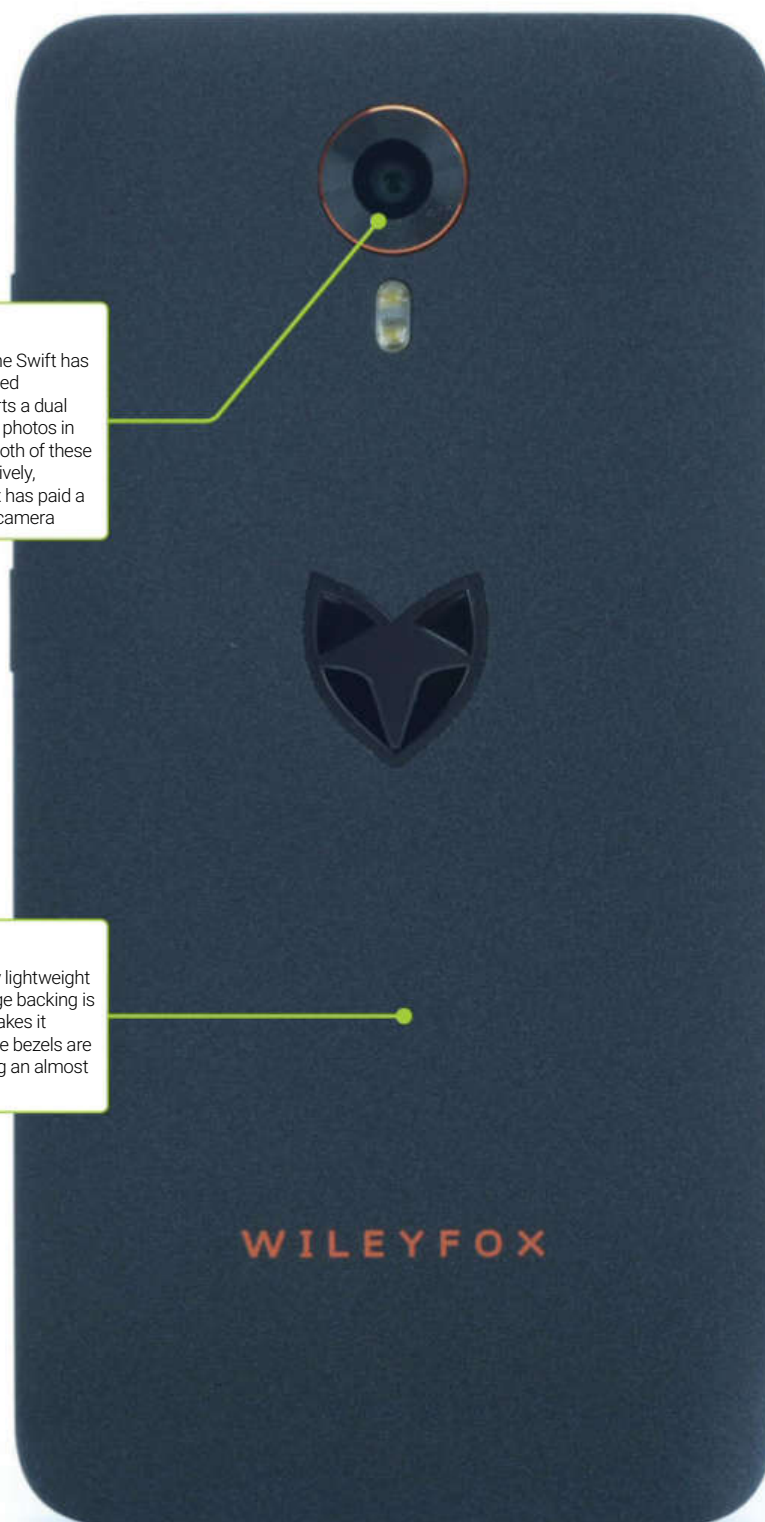


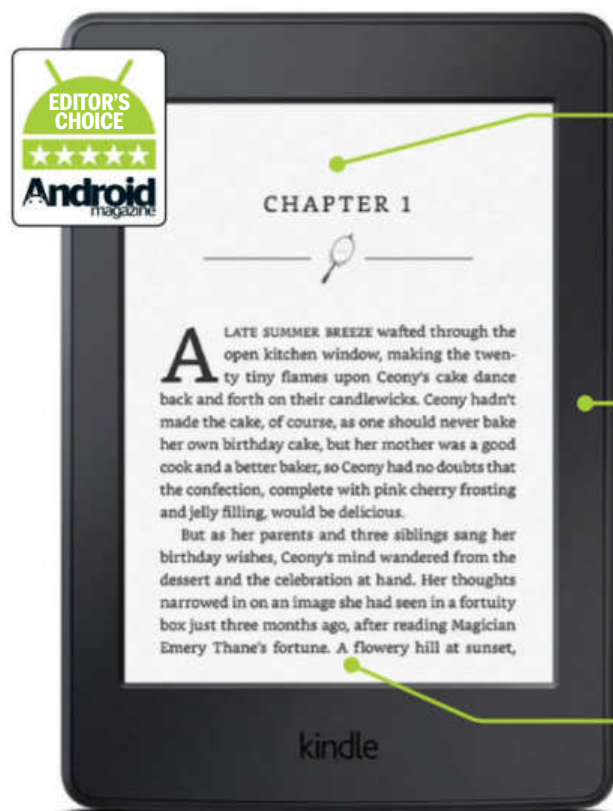
Picture perfect

The rear camera on the Swift has five lenses for enhanced focussing. It also sports a dual flash to help deal with photos in low light conditions. Both of these work extremely effectively, showing that Wileyfox has paid a lot of attention to the camera

Light and tight

At 135g, this is a really lightweight handset, so the strange backing is almost a relief as it makes it easier to hold. The side bezels are very thin as well, giving an almost edge-to-edge display





Kindle Paperwhite (2015)

This travel-size eReader offers crisp print-quality display and a six-week battery

Amazon has a hardware problem. Last year's Fire phone went down in flames, its Dash Button was mistaken for an April Fool's joke and Kindle sales are sliding. The eReader, famed for its low cost and access to Amazon's huge library, has seen a downward trend as users opt to use the Kindle app on their smartphone or tablet instead. Amazon is now pinning its hopes on the Kindle Paperwhite (2015).

The all-new Paperwhite's tent-pole feature is a 300ppi screen. It has the same 6-inch display as its predecessor, but this higher resolution means text appears as crisp as on the page of a book. This is a big selling point if you like eBooks with pictures or if you prefer smaller fonts. Significantly the Paperwhite's pixels-per-inch is the same as the top-of-the-line Kindle Voyage, which costs £80 more. When the two eReaders are compared, the Paperwhite's display looks a little washed out. But this is not a deal breaker and doesn't impact on performance.

Under the hood, the internal storage has been doubled from 2GB to 4GB and a bump up to 512MB of RAM from 256MB, bringing the Paperwhite in line with the Voyage's specs. The 1GHz Freescale i.MX6 SoloLight 1 processor is also the same. On a more advanced tablet we

might bemoan this chipset, but it handles like a dream on the simplistic Paperwhite with instantaneous page turning. Otherwise the specification sheet isn't much different to the 2013 model. It's the same convenient size, so it fits in one hand and is only as wide as a pencil, though it's still a little too large to fit in a pocket.

Like the 2013 model, Amazon says the battery lasts six weeks based on a half hour of reading per day, wireless turned off and the light setting at ten. After four weeks of our testing, we've retained a third of the battery, 30-50 minutes of daily reading with the light setting at 14.

The OS has been updated with new features and a new font designed for reading on digital screens. This new typography includes improved character spacing, the addition of hyphenation, justification, kerning, ligatures and drop cap support; all of which help to read faster with less eyestrain. If you would like to up the font size, the new layout gets more words per line.

However, the Paperwhite is not without its flaws. Amazon still insists on including onscreen ads in its basic models and eBook advocates will not be happy with how Amazon's library is laden with DRM. The lack of an adaptive front light is also disappointing.

No glare

Unlike reflective tablet and smartphone screens, the latest Kindle Paperwhite's E Ink screen reads just like paper – no annoying glare, even in the brightest of sunlight

Built-in ads

Be aware that the Paperwhite displays sponsored screensavers when your device is in sleep mode. If you can't stand advertisements, then you can pay £10 more when you order the eReader online – just select Without Special Offers from Amazon's options

Paper-quality display

The Paperwhite's biggest selling point is its 300ppi display, which is the same resolution as the much more expensive Kindle Voyage. Those added pixels make the text sharper and pictures all the more vivid

Information

Kindle Paperwhite (2015)

£89.99/\$119

» More information amazon.co.uk
» Supplied by Amazon



Technical specs

» Operating system	Kindle Paperwhite 5.6.5
» Processor	Freescale i.MX6 SoloLight 1, 1GHz
» Memory	4GB storage, 512MB RAM
» Dimensions	169 x 117 x 9.1 mm
» Weight	205g
» Display size	Six-inch
» Display resolution	1440 x 1080 pixels (300 ppi)
» Connectivity	802.11b/g/n Wi-Fi
» Expansion slot	N/A

Battery life

Amazon says a single charge can last six weeks, but after four weeks of daily use we still have a third of our battery left

Good for

Reading on the go

Lightweight with a long battery life and E Ink screen, the Paperwhite is great for globe trotting

Reading without squinting

The high-res screen at 300ppi, improved font and low backlight ensure reading your favourite eBook is easy

Bad for

Using in varied conditions

While the E Ink screen works fine outside, an adaptive front light would be a nice addition

Anything but reading

Unlike Fire tablets, Paperwhites can only be used for reading. They don't support videos, apps or audiobooks

Verdict

Though a minor update, the HD screen is a welcome addition that enhances the experience and makes the Paperwhite the best value-for-money eReader




Information

Vodafone Smart ultra 6

£125/\$N/A

» More information vodafone.co.uk
» Supplied by Vodafone

Best deal


£17
per month
(contract)

As this phone is locked to Vodafone, you get no choice of network, but there are many contract options available. The cheapest will get you 500 minutes, unlimited texts and 500MB data on a 24-month contract with no upfront cost

Technical specs

- » Operating system..... **Android 5.0 Lollipop**
- » Processor..... **Qualcomm Snapdragon 615 1.5GHz 64-bit octa-core**
- » Memory..... **16GB storage/2GB RAM**
- » Dimensions..... **154 x 77 x 8.35mm**
- » Weight..... **159g**
- » Display size..... **5.5-inch**
- » Display resolution..... **1080 x 1920 pixels (401ppi)**
- » Front camera..... **5MP**
- » Rear camera..... **13MP**
- » Networks..... **4G, Bluetooth 4.0**
- » Expansion slot..... **microSD (up to 64GB)**

Battery life



The 3,000mAh battery is quite a big beast that could last you for a couple of days

Good for

Spec sheet

The octa-core processor, 1080p screen and 2GB RAM are all top specifications for this budget price

Cameras

The amount of megapixels are fair for both cameras, but it's the speed and quality we like here

Bad for

Design

It looks pretty attractive and feels fine to hold, but the materials used aren't great

Network

If you live in an area that doesn't get good Vodafone signal then this phone is fairly useless

Verdict

The newly crowned best budget phone in the world marries excellent specs and a smooth user experience



Ultra-fast

The Snapdragon 615 processor in the Smart ultra 6 is the same as in the ZTE Blade S6, which we really liked. It also benchmarks much higher than the Moto G, which is one of its main rivals in this category

Fast 4G

There aren't a huge number of phones in this price bracket that offer 4G connectivity, but the Smart ultra 6 is one of the few out there. This is a welcome addition for anyone looking for a high-spec handset at a low price

Big upgrade

The Smart ultra 6 is a major upgrade on its predecessor, the Smart prime 6, which only had a quad-core processor, 720p display and 8GB storage. However, this doesn't come at an increased cost, like upgrades by other manufacturers do

Added apps

You get the standard suite of Google apps as well as a range of Vodafone apps. Many of the latter can actually be uninstalled, which is a welcome move for those who don't expect to use them



Vodafone Smart ultra 6

Vodafone hits high specifications with a very low price point

Vodafone's range of smartphones has had admiring glances from their competitors. Well designed, good specs and cheap too, they are making waves in the budget-phone market with the Smart 4 max earning great reviews.

The latest model is the 5.5-inch Smart ultra 6, priced at a very reasonable £125 PAYG. This puts it in battle with the Moto G and Asus ZenFone, so it has some seriously tough competition. However, it comes out of this particular battle with flying colours. The materials used feel very budget-buy, but it is still reasonably good looking and has extremely thin side-bezels, meaning that it is easy to use with one hand.

One thing to bear in mind is that it's locked to Vodafone's network, so it is worth checking the signal strength in your area before you buy.

It's remarkably quick for such a low-cost phone, benefitting from a Snapdragon 615 octa-core processor, which has four cores working at 1.5GHz and four at 1.0GHz. The processor is backed up by 2GB RAM. It feels nippy and light loading webpages, apps, and playing games with no trouble. We did notice it gets really hot when playing a game for ten

minutes, so that's something to watch out for. The cameras are fairly standard at 13MP and 5MP on the rear and front respectively. However, they are quick to focus and the HDR mode on the rear camera is as good as using the flash. They worked well in all conditions, even if the selfie-camera took a bit of adjusting in low light.

The screen isn't the sharpest we've seen, but at 1080p it's extremely good for the price and there's only a slight blurring of the images when watching videos. Overall, it's a great experience.

The 16GB storage is standard for this price bracket and you're left with about three-quarters of that once the preloaded apps are taken into consideration. This is much better than a lot of handsets, such as the LG Leon, which sees half its storage wiped out by pre-installed bloatware.

It's a shame that the back is non-removable as this is usually the trade-off for a premium metal-and-glass back instead of plastic. Luckily, the battery is a sizeable 3,000mAh cell that gives you up to two days of usage, but this will surely be seen as an oversight by Vodafone. However, this being the main gripe demonstrates how good the Smart ultra 6 really is. ■

Divoom Voombox-party

Get the party started with Divoom's latest Bluetooth unit

If you're on the lookout for a Bluetooth speaker, you'll be well aware of just how much choice there is. It makes the decision of choosing one even harder, but we can safely say Divoom's Voombox-party should make your shortlist. Bluetooth and NFC connectivity should satisfy any Android user and the streaming range was particularly decent when tested. Divoom's party speaker houses two 2-inch full-range drivers that help to power a strong signature sound, but the bass has been digitally enhanced to please modern music taste. This is a speaker that can easily fill a room, but sound becomes a bit distorted at a higher volume. It's fair to say that portability is the biggest design cue here, with a robust shell that can withstand the harshest conditions at the beach or at a BBQ. It's a pretty heavy speaker as a result, but you're safe in the knowledge that it's super rugged. The 4,200mAh battery gives around eight hours of playback at moderate levels and we liked that you could use the speaker as a hands-free speakerphone thanks to the integrated microphone. So there's plenty to like here, highlighted by the smooth sound and hardy design.

» Price £119/\$149.99

» More information divoom.com



Connectivity is in the form of Bluetooth or NFC



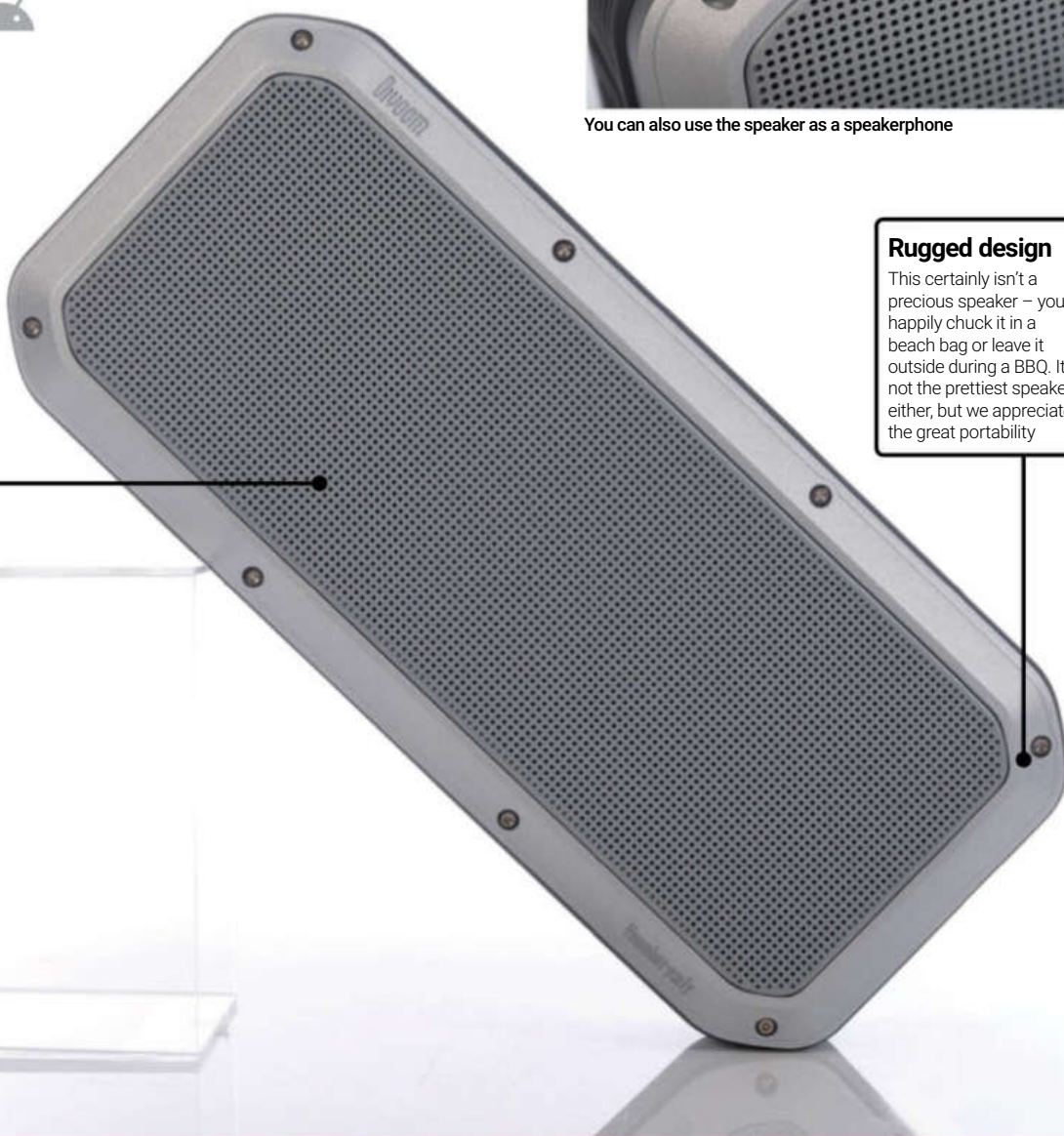
You can also use the speaker as a speakerphone

Sound quality

You'll easily fill a room with the Voombox-party and for the most part, sound is very good indeed. You may notice some blurring when you really pump up the volume, but we were still impressed

Rugged design

This certainly isn't a precious speaker – you'll happily chuck it in a beach bag or leave it outside during a BBQ. It's not the prettiest speaker either, but we appreciate the great portability



STK Intense Bluetooth Headphones

If you can forgive the lack of bass, these STK headphones have a lot to offer

Bluetooth headphones can always be a bit hit or miss. Sound quality is invariably inferior and those drops in connection can be rather frustrating. STK Accessories is hoping to tackle that view with its rebranded Intense Headphones and after initial concerns over the gaudy design, we very much liked what we saw and, more importantly, what we heard.

The gold finish here is going to be hit or miss, but what they really are is ridiculously light, a crucial feature when reviewing any type of on- or over-ear headphones. As a result, comfort levels are very high. Far too often, on-ear headphones are too heavy and

snap over your ears too tightly for any type of long-term listening. STK has made the headband fully adjustable and the earcups are beautifully cushioned.

Battery life is set at eight hours, which means you'll be able to use the Intense Headphones for a couple of days at a time without charging them.

Sound quality is a bit of a mixed bag, but that's only to be expected at the price range. The bass isn't anywhere near as prominent as it should be, but in truth, it doesn't really affect the listening experience. The mid-range is lovely, clear and levels weren't twisted at higher volumes.

» Price £99.99/€199.99

» More information stk-acc.com



Bluetooth connection is simple and smooth



You'll either love or hate the gold colouring



Comfort

The headband is fully adjustable, so you're guaranteed to get a fit that suits your head size perfectly. It's cushioned with soft, faux leather, meaning you'll wear these for hours and hours

Lack of bass

If you're a fan of modern EDM music, then these STK offerings won't satisfy your needs. This is because the bass is virtually nonexistent, but the overall sound profile is surprisingly good

Stagelight

A virtual music studio that won't give you stage fright



We love Android, but have to concede that when it comes to serious music-making apps, it's miles behind iOS. The main reason cited for this is Android's continuing problem of audio latency. However, Lollipop has reduced this somewhat and developers seem to be taking note, including Open Labs.

The firm's Stagelight mobile music studio has been available for Windows PCs and phones for a while now, but recently underwent a major revamp. The Android version's interface looks identical, right down to the odd oversight of advising you to use the keyboard if you don't have a touchscreen! Since the app is pretty CPU-hungry, a powerful, modern device is recommended – it worked well on our 2013 Nexus 7 once we closed a few other apps.

While offering all the editing features you'd expect from a pro-style digital studio, Stagelight is designed to be easy to use. To this

The timeline view enables you to move, copy and edit sections of each instrument track

end, it helps beginners to get started with a series of interactive tutorials. The first of these shows you how to build a song using the DJ-style Loopbuilder, selecting various loops to play for each instrument track, or whole song parts (intro, verse and so on) to trigger an entire column. Naturally, you can record your performance, then switch views to tweak your creation in Timeline mode. The latter is a more traditional setup with a timeline for each track, where you can then move, delete, copy and paste sections, and also split or duplicate them.

In either mode, double-tapping a section of music gives you a close-up look. Here, depending on the track type, you can alter the looping of an audio sample, edit the notes played by a virtual keyboard instrument or change a drum pattern. Alternatively, you can re-record a section using onscreen keys or drum pads, with the option of overdubbing. Extra context-sensitive options in a side



Creating new drum loops is fun – use the editor or play the pads live

panel include quantisation, tuning, sample cropping and key velocity, plus a whole host of effects – which all have their own presets and can even be applied to individual drum sounds. More impressive still, you can add 'automations' to a track, to control things like gain, pan and low/high-cut filters, by moving points to shape a curve. Effects and filters (and parameters for synth sounds) can also be altered in the mixer panel for each track, so you can adjust them easily on the fly. Another useful feature for non-musicians is the key lock option that limits the notes available to ensure you'll play in the correct key for the music. When it comes to starting a new

song, you can do it from scratch or use one of the genre templates. Either way, you can create song sections by playing notes/beats or using the editor. Or, you can record audio loops or import them from files. One thing to note is that you won't be able to save or share your creation until you've purchased a one-off licence (£7.81/\$9.99), via buying store credits with IAP.

2 hour wonder

Want your money back? You've got 120 mins to decide!

- 0-40 minutes**
The interactive tutorials can be very helpful
- 40-80 minutes**
We're amazed by the vast array of features
- 80-120 minutes**
You can record your own audio and import loops

keep refund

» specification

Price Free + IAPs

Designed for: Tablet
Requires Android: 4.4 and up

» verdict

Performance

Design

Value

A surprisingly sophisticated music-making studio that's also easy to use



» best free alternative **AUDIO EVOLUTION MOBILE STUDIO** » This virtual music studio offers multi-track recording with some cool sounds and effects.

Webmaker

Can you really design a website on your phone?

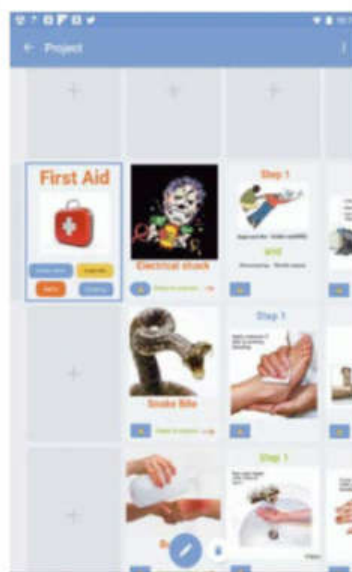


Mozilla's Webmaker project started in 2012, offering a range of web-based tools for

creating websites. Unlike the Thimble tool, which teaches webpage coding with HTML and CSS, the new Android app enables you to design simple sites via a graphical interface. As such, it offers a very shallow learning curve. However, it comes with some serious limitations. The main drawback is that you can't include any links to external content or pages, only internal.

The app's Discover tab features a selection of example projects made by other users, but sadly there's no search option. Still, the highlighted projects give a good example of what can be achieved using Webmaker, ranging from tutorials to a virtual art gallery. We even managed to create a very basic adventure game.

Switching to the Make tab to create your own project (or remix an existing one), you're presented with a plan of the site. A blank homepage in the middle is surrounded by + signs to add more pages. Adjoining pages

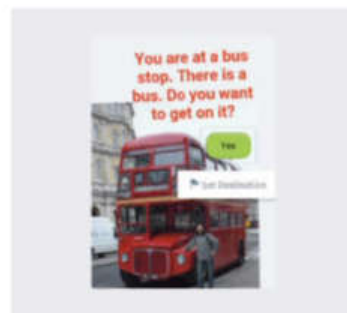


are navigated to by tapping arrows on the edges of the current one. Alternatively, you can add a button link to a page. If you only want the latter, we found a workaround by creating distant destination pages, then deleting the pages in between.

Any of three element types can be added to a page: text, photos and buttons. Each element can be tweaked by tapping it to select, then hitting the paintbrush icon. Sadly, there are only three fonts available, but you can select any shade from a palette. Photos have optional borders, while buttons can be rounded and it's a cinch to select a link destination from the site plan.

What we have here is a simple tool for creating simple sites on your Android device that are hosted by Webmaker. It's fun as an introduction to the topic, but no substitute for a proper CMS like WordPress.

Add pages to your plan; adjoining ones are linked by arrows in the site



Add text, images and optional button links to each page of your website

» specification

Price Free

Designed for: Phone and tablet

Requires Android: 4.0 and up

» verdict

Fun to play with, but very limited and lacking in customisable options



» like this? try this!



Website Builder

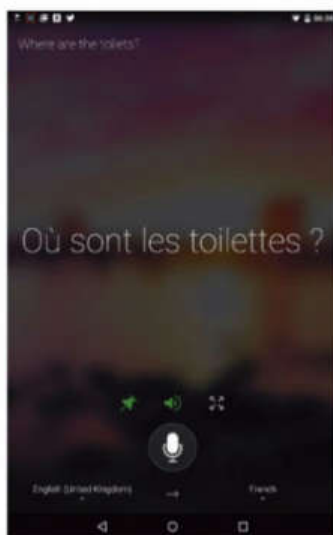
This cross-platform tool enables you to make websites and use your own domain name.

Microsoft Translator

Translate phrases in over 50 languages



What's wrong with Google Translate? You might ask. Well, nothing really. Still, Microsoft Translator's interface has a nice blurred photo backdrop and is less cluttered: just tap on the microphone or keyboard icon to get started. Unlike Google Translate, there's no automatic



language-detection feature, although you can easily change input/output languages and switch them round (on keyboard, but not currently voice). Nor is there (at the time of writing) any image or handwriting recognition, an offline mode, reverse-translate option or even any sharing functionality. It also supports fewer languages. On the plus side, the large-print full screen option for translations should prove useful to you when you're out and about.

» Price Free

» Designed for Phone and tablet

» Requires Android 4.3 and up



You can pin common and useful phrases for easy viewing later on

» best free alternative

GOOGLE TRANSLATE » Packed with features and now built into Android Wear, it's the ultimate translation tool.

MSTY – The Music Messenger

Send someone a musical message



Yet another text-chat app, MSTY's unique selling point is the ability to send selected music tracks, along with a suitable background image and caption – a bit like a musical postcard. Sadly, there's currently no song search option; instead, you choose a genre or mood and select from the track list. Still, it's fun and you can use your own images (or



built-in ones) and type the message, which can be repositioned. Other than that, the conversation screen looks much like any other similar chat client.

» Price Free

» Designed for Phone and tablet

» Requires Android 4.1 and up



Fixr – Clubbing & Nightlife

Fix up your social nightlife



This newly rebuilt mobile-ticketing app for clubbers looks cool and adds several new features. Most notable is the addition of private events such as parties, although it seems you can't create them in the app itself. Other additions include multiple ticket types, sharing of events and access to SoundCloud music for artists. There's also a powerful new search option to find



events or, alternatively, browse them in the Explore section (filterable by music genre and distance). Events still seem a bit sparse though.

» Price Free

» Designed for Phone

» Requires Android 4.0 and up

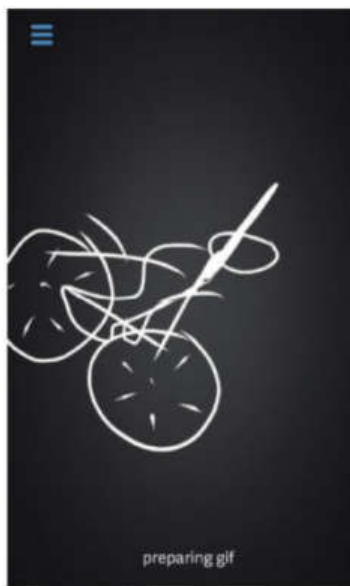


Ink Space

Draw and animate your 3D doodles



Zach Lieberman's experimental app amazed us when we first saw it in action. The simple but brilliant concept is that you draw something with your finger on screen, then tilt the device to rotate it in 3D. Indeed, you can tilt while drawing to create some interesting 3D effects. We tried sketching a man on a bike, rotating 90 degrees to draw handlebars, but they kept appearing in the middle of the bike. It seems that you need to draw off-centre to position things off the central tilt axes. It takes a lot of trial and error, particularly as there's no undo option – arrgggh! Not only that, but there are no drawing options available, apart from altering the line thickness, and it's a real shame there are no colours. One thing you can add is an animated line that pulses and redraws itself. Once happy with your drawing, you can record the view as you tilt it to create a GIF animation that you can share with friends. Despite some major limitations, including no save option, Ink Space is fun to play around with.



Record your 3D sketch while tilting it to create an animated GIF

- » Price Free
- » Designed for Phone and tablet
- » Requires Android 3.0 and up



Ninja Jamm

Mixing music has never been so much fun



We've finally managed to tear ourselves away from Ninja Jamm to write this. It's so hard to put down! Far from being a complete virtual music studio like Stagelight, this innovative remix app still has you mashing up beats, loops and samples. Not only is tapping and swiping involved, you even get to tilt and shake the device!

Ninja Jamm is a collaboration between the Ninja Tune record label, technology collective Seeper and veteran DJ duo Coldcut, who also provide some of



Either swipe the XY pad for varied effects or just tilt your Android device

the content for remixing. You get to choose from around 35 tunes (by Ninja Tune artists) and sample packs, some of them free, including genres such as dubstep, house and trap. The 'Jamm' then starts playing and you can skip to different song



You get five free tune/sample packs, while others can be purchased

sections and loop them indefinitely. The default screen sees you switching between eight loops for each of the four channels.

Flicking a channel to drill mode lets you hold down one or more individual waveform clips to play them repeatedly and create custom loops. A stab matrix with slider is used to add scratch samples, while the effects screen offers crush, filter, delay and reverb for each channel. Even better, an XY pad enables you to apply multi-effects by moving two grid markers or tilting the screen. Finally, the Coldcutter automatically cuts up clips in various ways, with extra buttons for manual fills and glitches – or just shake the device.

While there's sadly no option yet to import your own samples – which would hugely expand the creative options here – mixing is addictively fun, and you can even record your Jamm and upload it to SoundCloud. If you own a tablet, it's also well worth paying £0.99/\$1.49 for the Share+ IAP which also gives you access to all of the tools on a single screen, an Android exclusive, to make mixing even easier.



Dreamify

The images of your dreams... or nightmares



Making use of the open-sourced code for Google's Deep Dream project (to get computers to analyse and recognise images), this unofficial app will turn your photos and images into trippy artwork with psychedelic colour patterns and warped effects. If you've ever wondered what it's like to take mind-bending drugs, this is probably the kind of thing you'd see... not that we'd know of course.

The process is simple: just select one of 12 presets, move a few parameter sliders, then take a photo

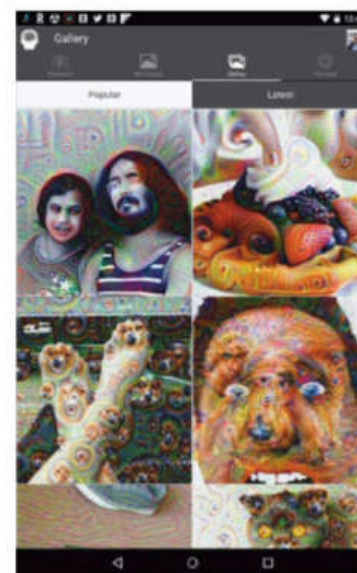
or choose one from your gallery. The image can take some time to render and you have little idea what adjusting the parameters will do (tip: hold the icon to the left of each parameter name for more details), but some interesting, and sometimes quite haunting, results can be produced. The developer also has plans to add advanced features with a premium upgrade.

- » Price Free
- » Designed for Phone and tablet
- » Requires Android 4.1 and up



» like this? try this!

PLANETICAL » Generate a 'planet' – well, a 3D circular panorama – from any of your photographs.



Swirly coloured patterns are abound in these Dreamified images



» specification

Price Free + IAPs

Designed for Phone and tablet
Requires Android 2.3.3 and up

» verdict

Performance

Design

Value

A limited song selection to choose from, but remixing is easy and very addictive



2 hour wonder

Want your money back?
You've got 2 hours to decide!



» 0-40 minutes It's an easy app to get started and it's so much fun!



» 40-80 minutes Lots of loop permutations and effects to play with



» 80-120 minutes The Android-only multiscreen mode is brilliant

keep **refund**

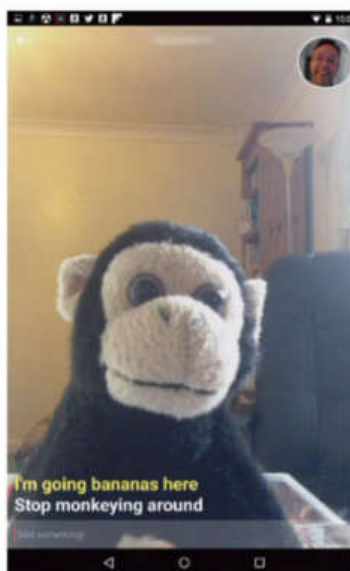
The Android-only multiscreen layout lets you access all the tools at once

» like this? try this!



GrooveMaker 2 Free

Not so easy to use, but up to eight channels and a greater range of loops.



Text messages are superimposed on the video camera image

Yahoo Livetext Shhh... welcome to silent video messaging



Once the stuff of science fiction, video calling is now commonplace – even your grandma might know how to Skype these days. However, Yahoo's research showed that some people were hesitant to use standard video chat, particularly if in the middle of doing something or in a location with a lot of background noise. So there is a genuine use for LiveText, a cross-platform video chat app that replaces audio with text messaging. It could prove to be quite handy while sat in class or at work (ahem). You get to see those facial expressions

while texting, so no more need for emoticons or LOLs.

Both participants need to be signed up to Yahoo and be friends to start a conversation, but after that it's very easy to use. Just tap your friend's avatar to call them, then start exchanging texts. Helpfully, you can see your own camera view in a small circular inset; tapping this switches to the rear camera.

» Price Free
» Designed for Phone
» Requires Android 4.1 and up



» like this? try this!

GLIDE – VIDEO CHAT MESSENGER » Chat live or record videos, even when offline, and share them with others to watch later.

quickhits

5 top apps for... Calendars



Sunrise Calendar Free

As well as having a cool Material Design look, Sunrise syncs with lots of other apps and services. It also comes with its own Meet keyboard to make it far easier to arrange meetings.



Google Calendar Free

This trusty old stalwart has received a major upgrade with Android Lollipop. It looks stunning with its cartoon backdrops and icons. The Schedule view is cool too and it syncs well with your Gmail account.



Jorte Calendar & Organiser Free + IAP

Akin to a personal organiser, Jorte is a highly customisable calendar that lets you add your icons and photos to events to help them stand out. There's also a countdown option for big dates.



aCalendar Free

This veteran calendar app is packed with organisational options and comes with a selection of widgets. The premium '4' version also adds numerous extra features such as busy notifications and an improved layout.



Business Calendar 2 Free + IAPs

Appgenix's app is a very versatile calendar for business users. The new version features an upgraded interface; just long-press a day to quickly view its schedule. A nice search facility too.



EXPERT **Apps** REVIEWS WHEREVER YOU ARE

NOW
100%
DIGITAL



iOS & ANDROID



OVER 300 REVIEWS



TIPS & TRICKS



APP GROUP TESTS



BEST FREE APPS



DOWNLOAD THE FREE APP NOW

 **iTunes**

 **Google play**

 **amazon**

 **zinio™**

 **nook**
by Barnes & Noble

head to head

The best app to help you guess the name of that elusive track

SOUNDHOUND vs SOUND SEARCH

The name of a song being on the tip of your tongue is one of the most irritating things out there. We've pitted

SoundHound and Sound Search from Google Play against each other to help you make your mind up

» specification

Price **Free**

Designed for: Phone and tablet

Requires Android: Varies with device



» specification

Price **Free**

Designed for: Phone and tablet

Requires Android: 4.0 and up

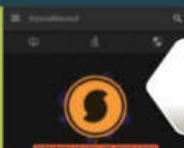


SoundHound

Sound Search



SoundHound is an extremely good-looking app, with an easy to follow menu for identifying songs and finding your recent searches. The colour scheme is striking too.



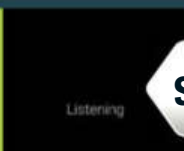
LAYOUT



Sound Search for Google is a fairly well-designed app, in keeping with Google's style, but it isn't particularly inspired. Nevertheless, it is easy to navigate.



We had a bit of a struggle connecting to SoundHound, but once we did, it did the job admirably, finding and saving the songs. Reliability is still an issue though.



SONG RECOGNITION



The time for Song Search from Google to recognise a tune is impressively fast and it flashes it up instantly. It also saves the last song in the widget.



Your search history is well laid-out, giving an accurate rundown of the music you have looked for in the past. You can also favourite certain songs in a separate list.



HISTORY



Your past music searches are laid-out clearly and are even synced across all your Android devices, so you will always be able to find your searched songs.



As well as the option to buy the song in Google Play, SoundHound will also direct you to listen to it on Spotify, Rdio, Pandora or Google Play radio.



MORE MUSIC



Once Sound Search from Google has recognised your song, it will give you a quick option to buy the song directly from the Google Play store.



SoundHound will show you popular songs, recent releases and the charts in your area. It will also provide artist information, which is a nice added extra.



EXTRAS



Beyond the presence of a widget that can easily be dropped onto your homescreen, Sound Search for Google doesn't offer many bonus features.



And the winner is...



SOUNDHOUND

SoundHound is not only great for recognising songs, but it looks better and offers more functionality than Sound Search from Google. As both are free, the only advantages Sound Search has are the widget and cross-device syncing. We'd recommend SoundHound for its features.

Fallout Shelter

Go underground for a brighter future



This spin-off simulation from the Fallout videogame series features the same post-apocalyptic setting and dark humour, but focuses on managing an underground vault and its cute cartoon dwellers. An interactive tutorial guides you through building new rooms and assigning dwellers to them. Production facilities for power, food and water are essential for survival. Making the best use of your dwellers' skills is an important aspect: each dweller has seven special attributes, ranging from strength to luck. To aid you, each room has a letter indicator to show the type of skill required; dragging a dweller onto a room will say whether they'll have a positive effect.

Each production facility has a countdown for the next resource to be created and hitting the Rush button can speed this up. However, there's always a chance of a hazardous incident, such as a fire or



This couple may soon disappear to the bedroom, resulting in an instant pregnancy!



Gradually expand your underground vault with more rooms and people

radroach infestation. One thing to note is that the game time continues when you're not playing – even when the app is closed, although drainage of resources soon stops. Even so, manually collecting resources can be a chore, so buying a Mister Handy (£0.76/\$0.99) is recommended: he harvests resources and deals with any emergencies in your absence.

More room types (20 in total) are unlocked as you build your population. New dwellers can turn up randomly or be attracted by a radio broadcast. However, the main

method is reproduction: just send a male and female to the living quarters and they'll eventually disappear, resulting in an instant pregnancy, with a birth following soon afterwards! Kids grow up fast too and inherit their parents' traits.

A key part of the game involves completing tasks to earn caps (in-game-currency) and lunchboxes (both available via IAP). These contain cards for caps, stat-boosting outfits and weapons too. It's advisable to arm your dwellers before sending them to explore the

wasteland for extra resources.

Weapons are also needed to defend your vault from invasion by raiders, mole rats or deathclaws.

Fortunately, the IAPs are optional and it all adds up to a fascinating open-ended simulation. If you do eventually get bored, then you can always conduct some fun 'experiments' on your population!

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 4.1 and up



what we've been playing



Geometry Wars 3: Dimensions
£1.55/\$1.99

The second act of this atmospheric adventure is now available and we're still enjoying its time-travel mechanic: you often need to switch eras to solve puzzles.



Lifeline
£0.77/\$1.99

It may look dull, with just a series of text messages, but this work of interactive fiction had us hooked until we finally rescued the shipwrecked astronaut, Taylor, from a spooky alien moon.



Recommend a game...

» **twitter**
@lgrobot



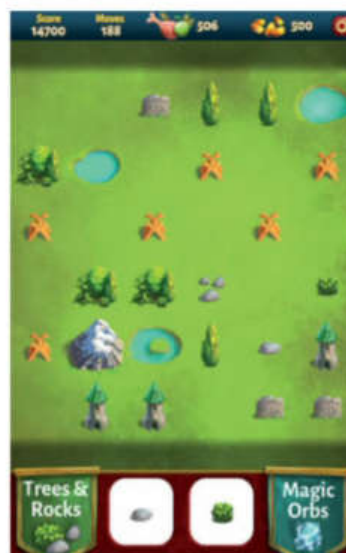
Farms & Castles

Well this looks a little familiar...



Square Enix's new puzzler reminds us of the classic Triple Town. Like that game,

it involves placing items on a six-by-six grid with the aim of matching three or more adjacent ones in order to make bigger items. You start off with bushes and stones, then eventually build up to make larger farms and castles; these in turn can then be combined into bigger buildings. There's a fair amount of strategy involved in



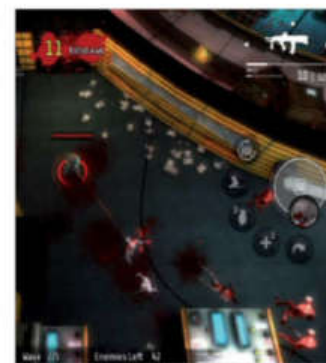
Try not to run out of space to make item matches – this isn't looking good...

making the best use of the limited space you have available and avoiding getting trapped items that then can't be combined. You also need to plan ahead so that the resulting bigger items will appear in the right place. Fortunately, your farms and castles produce goods and gold that can both be used to buy particular trees/rocks or magic spells that you want. Also available via IAP, the latter includes the ability to zap a grid space. It's fun for a while, although you'll inevitably reach a frustrating gridlock.

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 2.3.3 and up



Unmissable games



Killing Floor: Calamity £3.83/\$4.99

Based on the Killing Floor first-person shooter, this fun spin-off features a top-down view of the gory action as your soldier battles waves of zombies while yelling debatable things like "Get off me, you nonce!".



Lara Croft GO £3.99/\$4.99 + IAPs

Akin to Hitman GO, this stylish turn-based puzzler captures the essence of early Tomb Raider games as Lara pulls levers, dodges traps, shoots animals and finds treasure in 40+ levels.



Farming Simulator 16 £3.99/\$4.99 + IAPs

Manage your own mixed farm, planting crops, feeding animals and harvesting timber. The main attraction is the ability to drive massive tractors and trucks. It's all very realistic, apart from the lack of smell of course.



Windward £7.68/\$9.99

Requiring a powerful device to run this particular app, it's a great conversion of the seafaring PC game. Set sail to explore a unique, procedurally generated world. Protect towns from pirates and upgrade your ship.



Zoombinis £3.84/\$4.99

A recreation of the classic Nineties PC puzzler, it has you guiding the cute little blue Zoombinis, each one slightly different. You have to work out how they're being sorted at each stage.



Down the Mountain Free + IAP

This innovative endless runner sees you racing down a blocky, 3D mountain, avoiding hazards and collecting goodies on the way. Simple but fun, it has 300 objectives and 99 cute characters to unlock.



LEGO® Batman: Beyond Gotham

The dynamic duo have gone all blocky

Batman returns in brick form for his third LEGO adventure, although it's the first to appear on Android. A daft storyline sees Batman and Robin blasting off to space to prevent the evil Brainiac from destroying the Earth.

A typical LEGO game, it's a highly polished affair with lots of amusing animations. While it lacks the open-world planets of the console versions, it's a massive game (a 1.43GB download) with plenty to see and do. The fairly forgiving gameplay (you can't die) proves familiar, with lots of puzzle solving, platform jumping and combat. There's also the usual stud collecting and building of



Batman and Robin chill out in the batcave, which also acts as a level hub

items from bricks. Nothing new here, but it's good fun nonetheless.

As you progress, you'll unlock new characters and suits that have special abilities to help you solve puzzles and reach new areas. For instance, Batman's Sensor Suit

enables him to turn invisible and peer through solid walls.

- » Price £3.85/\$4.99 + IAPs
- » Designed for Phone and tablet
- » Requires Android 4.0.3 and up



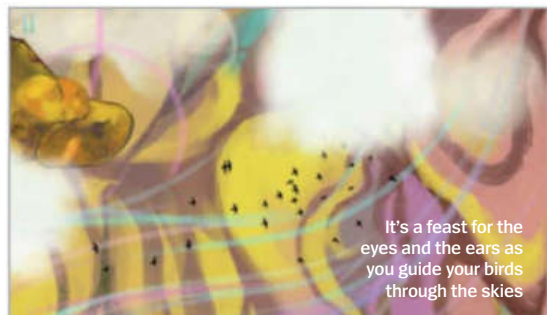
Gathering Sky

Come fly with us



Can you really have a game without goals?

Gathering Sky should probably be seen more as an interactive audiovisual work of art. Either way, it's beautiful and enjoyable. You start off with a solitary flying bird, guiding it around the sky by dragging a finger. More birds are gathered along the way and you're soon flying a flock through fluffy clouds and above countryside, sometimes enabling them to be dragged along by wispy air currents. The birds' journey is accompanied by orchestral music that appears to follow what you do, as if you were the conductor. Every so often, you come to a bank of cloud that leads to the next of six zones and a new musical movement. While it's a relaxing experience, at one point your flock is attacked by an eagle that picks off several birds. Later on, there's a dramatic thunderstorm.



It's a feast for the eyes and the ears as you guide your birds through the skies

- » Price £2.36/\$2.99
- » Designed for Phone and tablet
- » Requires Android 4.1 and up



Blood Gate – Age of Alchemy

Match-three monster-battling



While the Play store is awash with match-three games,

this one brings something new to the table and not only with its gritty fantasy setting. Instead of swapping jewels, here you draw lines between same-coloured hexagons to initiate attacks from your warrior as they engage in real-time one-on-one combat. Connecting hexes also powers up elemental boosts (eg fire) for a subsequent attack. In addition, there are special hexes with various effects. The ability to tag between heroes – including those of friends – during battles adds an extra tactical aspect. RPG elements include using collected loot to equip characters with weapons and armour, unlocking new skills. IAP emerald bundles speed up progress and refill scrolls, but the freemium side isn't overdone. A planned Arena mode (not available at the time of writing) will enable you to spar with other players.



Link the coloured hexes to unleash attacks and fill elemental boosts

- » Price Free + IAPs
- » Designed for Phone and tablet
- » Requires Android 2.3 and up



Card Crawl

Play the hand you're dealt



The objective in this fantasy solitaire-like card game is to clear the

dungeon, or rather a 54-card deck. Cards are dealt onto the top row and, if they're not monsters, they can be dragged to either of your avatar's hands, ready to use, or placed in their backpack for later. Sword cards inflict their number's damage on monsters; this reduces the foe's hit points to kill it, or at least reduces the damage done to you when you're forced to make it attack. Shields reduce damage from enemies and potions top up lost health, while collected coins can be spent later to unlock extra ability cards. The latter are often crucial for survival, enabling you to do things like redrawing all the dungeon cards or transforming an item into a potion. The strategy is all about making the best use of the cards you are dealt. The game feels well balanced and not too frustrating, unless you get a run of bad cards. Normal mode is free to play, while three extra modes (including constructed where you choose abilities) are unlocked via a one-off IAP (£2.29/\$2.99).



Use the sword to attack monsters; drag them onto the shield to defend

- » Price Free + IAPs
- » Designed for Phone and tablet
- » Requires Android 4.0 and up



Angry Birds 2

Has Rovio laid a rotten egg?

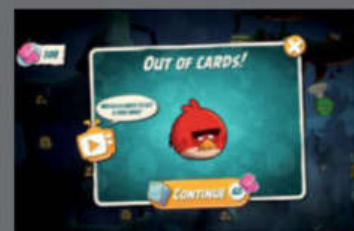


We've enjoyed many a freemium game, but sometimes developers take it too far. Sadly, this is the case in this otherwise polished and playable slingshot sequel. As failed level attempts result in a life being lost, while you start with five, each lost life takes 30 minutes to refill. You can sometimes earn an extra life by watching a video advert, but the main alternative is to buy one with gems that are slowly earned, or purchase an IAP bundle.

Much of the pick-up-and-play appeal of the original Angry Birds, and its many spin-offs, lies in the ability to experiment with each stage, so this aspect is really missed here. Indeed, not only do you have limited lives, but also the stages are slightly altered each time, using random building materials. While this adds variety, the downside is that it can lead to situations where you've got the wrong type of bird in order to complete the stage, unless you buy another bird using gems. To make things trickier, levels comprise of



Fill the destruction meter (top right) to earn much needed extra cards



Your choice of birds comes in the form of randomly dealt cards

multiple screens to clear with your limited array of birds – this time in the form of randomly dealt cards. At least you can shuffle them to decide which bird to use first, adding extra strategy. Each bird type has a special ability, such as splitting into three or dropping an egg bomb. Filling the destruction meter earns you an extra card, which helps. Another aid comes in the form of spells, such as a shower of ducks or turning buildings to ice – it feels a bit cheaty, although spells are very limited unless you buy more.

The Arena adds some extra interest; unlocked at level 25, it lets you play an endless mode, competing with other online players. There's also a social aspect if you link up to Facebook, with the ability to send and receive gifts.

Pac-Man 256 – Endless Maze

A game based on a glitch



Named after the notorious map 256 in the original Pac-Man coin-op, this modern spin-off features a

similar deadly glitch effect that eats away at the bottom of an otherwise infinite and isometric 3D arena. This adds an interesting chase element that changes the nature of the game to more of an endless runner, as you have to constantly keep moving away from the glitch. So there's no longer any focus on Pac-Man eating every dot in sight, although gobbling enough will unlock one of the 15 upgradeable power-ups, including laser, tornado and

giant. Naturally, you still need to avoid ghosts or gobble them up after eating a power pill – some things don't change. Retro fans will appreciate the familiar sights and sounds of Pac-Man, but possibly not the restrictive daily limit of six credits (used to continue playing after dying). Still, more can be earned from watching advertisements, or alternatively just pay the £5.44/\$7.99 IAP for infinite credits.

- » Price Free + IAPs
- » Designed for Phone and tablet
- » Requires Android 4.0.3 and up



Run away from the deadly glitch and keep gobbling those little dots



» specification

Price **Free + IAPs**

Designed for Phone and tablet

Requires Android 4.0 and up

» verdict

Performance

Design

Value

A flawed freemium model spoils an otherwise well-designed sequel



2 hour wonder

Want your money back?
You've got 2 hours to decide!



» **0-40 minutes** Visually, it looks superb with some amusing animations



» **40-80 minutes** We like the ability to choose the bird order from your cards



» **80-120 minutes** The wait to refill lost lives is a major fun-killer

keep **refund**

Every so often you'll face a boss pig, who takes more hits to destroy

» like this? try this!



Angry Birds Star Wars II Free

Both Star Wars spin-offs are brilliantly designed and will delight movie fans.

quickhits

5

top games for...
Endless runners



Temple Run 2

Free + IAPs

This phenomenally popular sequel builds on the classic original by letting you do more things, such as riding mine carts and zip lines. And now you can even get a Usain Bolt costume!



Jetpack Joyride

Free + IAPs

An oldie but goodie, this sideways-scroller has ultra-simple controls for the jetpack hero: hold the screen to ascend or release to descend. It's challenging, but fun and has lots of great jetpacks to unlock.



Sonic Dash

Free + IAPs

How far can the world's fastest hedgehog run? Retro fans will appreciate the authentic Sonic moves like spinning and dashing, plus trademark loop-the-loops and some familiar friends too.



Fotonica

£1.99/\$2.99

Freemium haters may want to give this first-person runner a whirl. Its wireframe graphics, speed and ambient music give it a particularly unique feel. Best of all is the inclusion of a split-screen two-player mode.



Radical Rappelling

Free + IAPs

Instead of running along, this one has you abseiling down a cliff, collecting coins and power-ups while avoiding deadly hazards. The IAPs aren't too obtrusive and there's a fair bit of skill to it.



March of Empires

Build your kingdom and conquer all



Gameloft's strategy MMO involves the usual building up of a castle settlement

and raising an army to defend it, then raiding other players' castles. At the start, you choose one of three rulers: King, Sultan or Tsar, each with their own strengths. For instance, the King's men have a faster marching speed and the economy benefits from faster construction.

An extended tutorial mode shows you how to build, train troops and research new items. However, the resource management aspect is overdone, involving endless building upgrades. Naturally, we were more

interested in the warfare. While it takes time to build up an army strong enough to launch a successful raid, your castle is immune in the meantime from attack. Forging alliances, with the help of in-game chat, will boost your chances by combining forces and resources, although treachery abounds! Disappointingly, you don't get to see battles in real-time once you've tactically arranged your troops on the field: instead you just watch the outcome in a replay.



You can't control battles in real time, but you will be able to view a replay

» **Price** Free + IAPs

» **Designed for** Phone and tablet

» **Requires Android** 4.0 and up



» like this?
try this!



CLASH OF CLANS » Launched in 2012, this strategy MMO has evolved and is still one of the best to date.

Android magazine BUYER'S GUIDE

Discover the best smartphones, tablets and accessories to buy in our top ten charts



For the most up-to-date reviews, head to www.littlegreenrobot.co.uk

THE LATEST ONLINE INCLUDE... WILEYFOX STORM » SONY XPERIA Z5 » HONOR 7

TOP 10 SUPER SMARTPHONES THE BEST FLAGSHIP AND MID-RANGE ANDROID PHONES ON THE MARKET

1		Samsung Galaxy S6 Samsung has come out fighting after the humdrum response to the S5, with this stunning handset made entirely of metal and glass. Samsung has had to sacrifice microSD support and a removable battery to make it so thin and light to hold, but it offers a 16MP camera, wireless and superfast charging, an improved fingerprint scanner and a benchmark-beating processor instead.	£499  See issue 52	
2		LG G4 The LG G4 is a close second for the phone of the year behind the Galaxy S6, with a distinctive leather-back case and superior camera. Its unique Quantum IPS screen will amaze with bright and crisp images that offer vivid colours, while its 200GB microSD port offers lots of extra storage.	£419  See issue 52	
3		Sony Xperia Z3 Artfully crafted from glass and metal, the Z3 is not just stylish, it's also 100 per cent waterproof. Its 20.7MP camera is one of the most powerful we've seen and the PlayStation Remote Play feature will appeal to gamers. The launch of the Xperia Z3+ is also set to bring down the price of this older model.	£499  See issue 44	
4		HTC One M9 We marked the M9 down for only being a very minor update on the M8, but it is undeniably a superb phone. Underneath its elegant silver and gold chrome shell, it houses a superfast Snapdragon 810 processor, 20MP camera, 3GB RAM, 32GB memory and some clever customisation tools.	£579.99  See issue 50	
5		Moto X (2014) The second-gen Moto X remains a contender for best phone despite only launching last year. It offers a stock Android experience with a 13MP camera, 15-minute Turbo charging, but is much cheaper than the Nexus 6 that has the same features. Its other specs are starting to look a bit dated though.	£395  See issue 45	
6		OnePlus 2 The OnePlus 2 might not be the 'flagship killer' it has claimed to be, but it remains an improvement on the original model. It is brilliant value for money thanks to its top-tier specs and premium design finishes. The USB Type-C connector shows OnePlus to be a forward-thinking company.	£289  See issue 56	NEW ENTRY
7		Nexus 6 Google's first phablet, the Nexus 6 is larger than either a Galaxy Note 4 or a OnePlus One. This can make it an awkward fit for one-handed use, but the gigantic 5.96-inch QHD display looks fantastic. It also has a super-fast processor and 3GB RAM for zippy use, along with a commendable 13MP camera.	£369  See issue 47	GOING DOWN ↓
8		LG G3 Though it's been superseded by the G4, the LG G3 continues to impress us with its pin-sharp QHD 5.5-inch screen, laser-focused 13MP camera and lightning-fast processor. However, its faux metal plastic casing is no comparison for the G4's leather back and its mono speaker is disappointing.	£274.83  See issue 41	GOING DOWN ↓
9		HTC One (M8) While the M9 has bumped the M8 down a few pegs in our chart, it remains a fantastic phone. An all-aluminium design with a bright 1080p screen and critically-acclaimed dual BoomSound speakers. Not only has its price slashed with the launch of the M9, it can be upgraded to Android 5.0 as well.	£369.99  See issue 37	GOING DOWN ↓
10		Samsung Galaxy Note 4 To look at, the Note 4 is a modest update on the Note 3, with a same-size display and continued emphasis on using the S Pen stylus. However, it has been revamped in almost every area. The TouchWiz interface handles better than ever, it has a 16MP camera and has an extra-long battery life.	£549  See issue 45	GOING DOWN ↓

In case you missed it... Chromebook supertest Read more in issue 53

Asus Chromebook C300

» Price £199.99/\$219
 » Website asus.com

The Asus Chromebook C300 was enjoyable to use and only suffered a small amount in performance. The design is reasonable and has that all-day long battery life that will keep you going and going.



Acer Chromebook 15 C910

» Price £229.99/\$229.99
 » Website acer.com

Acer's entry into our group test could be the answer if you're looking for a laptop-sized Chromebook, but otherwise it w pretty difficult for us to recommend the underpowered C910.



Lenovo N20p Chromebook

» Price £148.64/\$263.99
 » Website lenovo.com

The smallest model in the group, but yet still powerful enough to deal with most of the tasks you throw at it. Its main downsides are large bezels and a disappointing weight for its size.



Chromebook Pixel (2015)

» Price £799/\$999
 » Website store.google.com

The Pixel is by far the best Chromebook on the market, but you will have to pay an extremely heavy price for that quality. You do get brilliant performance though.



Buyer's Guide

TOP 10 BUDGET BUYS IF YOU'RE SHOPPING FOR A SMARTPHONE ON A SHOESTRING, CHECK OUT THESE LOW-COST MOBILE MUST-HAVES

1		Vodafone Smart ultra 6 Our newly crowned best budget phone in the world marries excellent specs and a smooth user experience to topple the ZTE Blade S6 back into second place. We love this phone's octa-core processor, 1080p screen and 2GB RAM – specs you'd expect to see in the premium handset. Throw in the fact it looks good and the cameras work brilliantly, and you've got a serious bargain.	£125  See issue 56	NEW ENTRY
2		ZTE Blade S6 While its price puts it at the top end of what we would call a 'budget phone', the Blade S6 is the best ZTE Blade in years. It runs Android Lollipop, has a 64-bit Snapdragon processor, 2GB RAM and the exact same IMX214 camera as the Sony Xperia Z3 – which costs around three times as much!	From £169.99  See issue 50	GOING DOWN
3		Wileyfox Swift The Wileyfox Swift is excellent value for money and good fun too. It matches its rivals in the market with a 5-inch HD screen, 2GB RAM and a five-lens camera enclosure, perfect for taking photos in low light. Cyanogen 12.1 proves to be an authentic alternative to stock Android.	£129  See issue 56	NEW ENTRY
4		Moto G (2015) The newly updated third-gen Moto G (2015) model doesn't offer the same metallic finish as the ZTE Blade S6 or Alcatel OneTouch Idol 3, but you can personalise its design before you buy, like you can the much more expensive Moto X. It is also waterproof, offers 4G and has a dual-flash 13MP camera.	£179  See issue 55	GOING DOWN
5		Moto G 4G (2015) Now that the regular Moto G and Moto E have been updated and both offer LTE, this handset doesn't offer much except that it's slightly cheaper than the Moto G (2015). It also looks very similar with a 5-inch screen, booming dual speakers and vanilla Android 5.0.2, but it only offers an 8MP camera.	£111  See issue 51	GOING DOWN
6		Moto E (2015) The second-gen Moto E is nipping at the heels of the Moto G for the title of Motorola's ultimate no-strings-attached smartphone. It also offers 4G and has Android Lollipop built in, with the added promise of an all-day battery. But its 5MP camera, bulky size and poor display reflect its budget price.	£109  See issue 54	GOING DOWN
7		Asus ZenFone 5 While it is one of the most expensive phones in our budget buys chart, the ZenFone 5 offers an awful lot for less than most mid-range phones. A stylish metal design is available in a range of colours, it has a sharp 5-inch screen, powerful Intel Atom processor and an 8MP shooter with a range of modes.	£149.99  See issue 48	GOING DOWN
8		Honor 4X The biggest and best of the three Honor phones in this chart, the 5.5-inch Honor 4X has a lot going for it, including a 13MP camera, off-brand octa-core processor and 4G connectivity. However, you pay for the high specs at a low cost in other areas: it only runs Android 4.4 KitKat and has a mediocre screen.	£164.99  See issue 53	GOING DOWN
9		Sony Xperia M2 Aqua Just like Sony's flagship Xperia Z3, this mid-range marvel is waterproof up to at least 1.5 metres. Sony's other top feature is here as well with an 8MP rear camera and a suite of photography tools. The only downside is that after you factor in all the preloaded apps, it only has 4GB of storage.	£129  See issue 48	GOING DOWN
10		Honor Holly The low-end alternative to the Honor 6, the Holly manages to offer 16GB storage, an 8MP camera, a 5-inch HD screen and dual-SIM with only a double-digit price tag. However, you get what you pay for as the build quality feels quite cheap and it only runs Android 4.4.	£89.99  See issue 50	GOING DOWN

In case you missed it... Custom launchers Read more in issue 55



Nova Launcher

» Price Free + IAPs



This versatile replacement launcher offers a stack of options to

customise your homescreens. Change icons, layouts, animations and so much more. Plus there's handy wraparound scrolling – a great launcher feature.



EverythingMe Launcher

» Price Free



One of several 'smart' launchers, this automatically organises your apps into smart folders, while a 'Prediction bar' suggests other apps for you based on the time of day and location. Amazing, but not for everyone. It is completely free though.



Buzz Launcher – Smart&Free

» Price Free



If you don't have time to custom-create the look you're after, you can choose from over 800,000 (the largest library available to launcher users) user-created themes. The launcher does it all for you.



Next Launcher 3D Shell

» Price £11.49/\$16.99 + IAPs



If you want to impress your friends, this is the launcher to get downloaded onto your phone. Navigating homescreens involves all manner of whizzy 3D effects, wallpapers and animations. Expensive, but very flashy.



TOP 10 BEST TABLETS

WHETHER YOU'RE LOOKING FOR A SEVEN OR TEN-INCH DISPLAY, THESE ARE THE TOP TABLETS AVAILABLE ON ANDROID

1		Sony Xperia Z4 Tablet Sony's lightest and brightest tablet ever, the Z4 has made us fall back in love with the 10-inch tablet when the Nexus 10 left us cold. With a clip-on keyboard and Microsoft apps bundled in, it is a top tablet for when you want to set up a mobile office. But all work and no play makes for a dull device, so the Z4 also supports PlayStation Remote Play and has a crisp 2K display screen, a Snapdragon 810 processor and 3GB RAM to ensure it can keep up with console-quality frame rates.	£499  See issue 54	
2		Sony Xperia Z3 Tablet Compact If the Xperia Z4 is an iPad killer, the 8-inch Z3 has the iPad mini in its sights. Weighing just 270g, it's slim and stylish like its bigger brother, with 3GB RAM and a Triluminos display to boot. It also integrates with the PS4 so the only real difference between the Z3 Compact and the Z4 is its size and price tag.	£269  See issue 46	
3		Google Nexus 9 A mighty Nvidia Tegra K1 processor and 2GB RAM mean that even running the most graphic-heavy games won't slow this 64-bit tablet down. The built-in BoomSound speakers also offer great sound quality, making Google's new tablet an all-round media consumption device.	£319  See issue 45	
4		Samsung Galaxy Tab S 10.5 Ultra thin and ultra bright, colours look vibrant and details distinct on this powerful Super AMOLED screen. Samsung's iPad slayer also puts many other Android tablets to shame with a multi-window mode to display several apps at once and octa-core processor ensuring lightning-fast performance.	£349  See issue 43	
5		Sony Xperia Z2 Tablet Arguably one of the most portable 10-inch tablets available, the Xperia Z2 Tablet is waterproof and can support a SIM card for 4G use. It is also surprisingly thin and light to carry, and includes power-saving modes to ensure longer battery life. Reasonably high-spec, it has a whopping 3GB RAM.	£329  See issue 39	
6		Tesco Hudl 2 This sequel to the supermarket chain's own-brand tablet can't compete with premium models, but sets a new benchmark for budget tablets. Upping the display size from 7 to 8.3-inches, the Hudl 2 also runs Android 4.4.2 KitKat and can handle anything you throw at it thanks to an Intel Atom processor.	£99  See issue 44	
7		Samsung Galaxy TabPRO 8.4 Wi-Fi The smallest tablet in Samsung's collection, the TabPRO 8.4 proves that good things do come in small packages. A stunning 359ppi screen puts the Nexus 7 to shame, though we'd prefer higher-quality speakers. However, an 8MP camera and an intuitive interface are good compensation.	£199  See issue 38	
8		Vodafone Tab Prime 6 Vodafone's 4G tablet is the network's best own-brand device yet, shipping with Android Lollipop built in, a Snapdragon 410 processor and 32GB microSD. Obviously it also requires a Vodafone contract so we recommend buying it outright for £150 and getting the pay as you go deal with 6GB data.	£150  See issue 53	
9		Archos 101 Oxygen This wedge-shaped tablet is seemingly tilted to give you a better angle for watching videos, plus a mini-HDMI port to connect it to your TV. But we're not sure why as it has a spacious 10-inch screen of its own with full HD display and good viewing angles. Speedy ARM Cortex A17 CPU is a bonus though.	£169.99  See issue 38	
10		Amazon Fire HD 6 Despite only having a 6-inch display and a budget price tag, the Fire HD 6 is a decent tablet for watching movies and listening to music. However, the inferior forked OS and lack of third-party app support make the Fire HD 6 hard to recommend for regular, let alone heavy-duty, use.	£79  See issue 46	

NEVER MISS AN ISSUE OF ANDROID MAGAZINE

For the latest reviews, check out our great subscription offer on **page 30**

SAVE
30%



DroidSupport

» troubleshooting advice » hints and tips

» email an expert

Got an Android-related problem that you need solving? Let us know!

qa@littlegreenrobot.co.uk

Share your tips & tricks

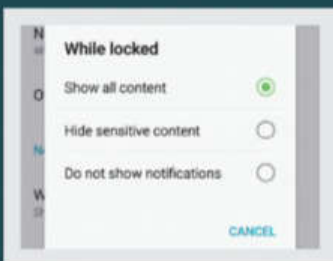
Join us on Facebook and Twitter to share and receive some great tips and advice

» facebook

[/littlegreenrobot](https://www.facebook.com/littlegreenrobot)
Like us on Facebook and join in our Android community

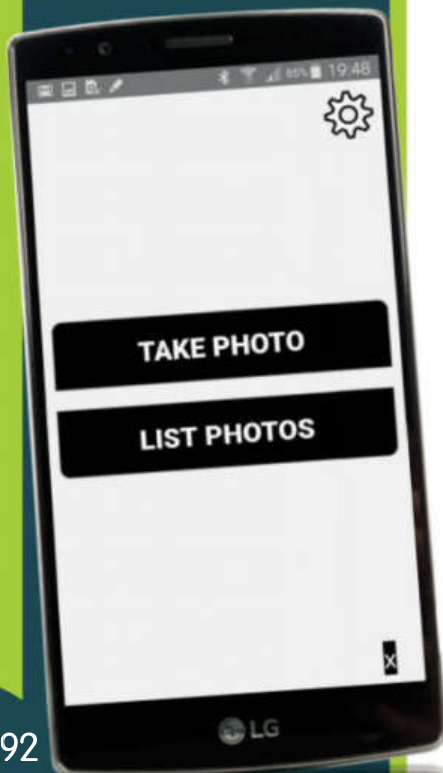
» twitter

[@igrobot](https://twitter.com/igrobot)
Follow us on Twitter to send your thoughts and questions



Did you know?

Securing your Android device makes sense, but you can take things further. Go to Settings>Sounds and notifications, then tick 'Hide sensitive content' in the Notification access option. This will ensure that when notifications appear on the lockscreen, no information is shown.



Can I rename my photos easily?

“One thing that really annoys me about taking photos on my Android phone is that the file names make no sense at all to me. What I need to organise them is the ability to rename them quickly and easily. Is this possible?”

Don Morgan

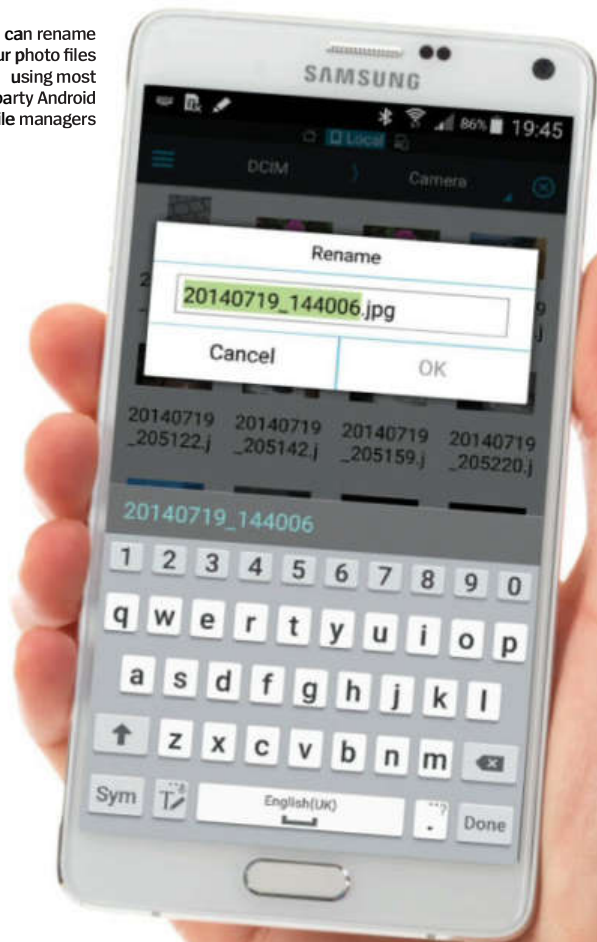
A **Hi Don.** We completely understand your desire to rename the photos that you take because file names don't make sense in understanding what each picture is of, but there are two ways to look at this. Would renaming your photos actually help you quickly understand when and why they were taken or would it make more sense to view them visually as you can already in the Gallery app? You can easily create categories and organise your photos that way, but if you do have a specific need to rename photos then we have two solutions for you that should help. The first method is to use a third-party file manager, such as ES File Explorer File Manager from Google Play, and to then manually rename each image using the option at the bottom of the screen. The photos, usually stored in the DCIM folder on your expansion card, will be displayed as thumbnails for easy recognition. The other way is to download the Take Rename Photo app, which will let you ap a photo and then rename it straight away. You can also

Some apps let you rename photos as soon as you have taken them

choose a folder location to save it and this way you can always be organised in how your photos are labelled. Both methods are slightly time-consuming, but

there really is no way around this unless you look at apps like DSC Auto Rename that can deal with batches of photos, but these should be used with caution.

You can rename your photo files using most third-party Android file managers



Ask your questions

Got a problem with your Android phone or tablet?
Send it to us and we'll find the solution

» facebook

[/littlegreenrobot](#)
Get help from our
Facebook community

» email

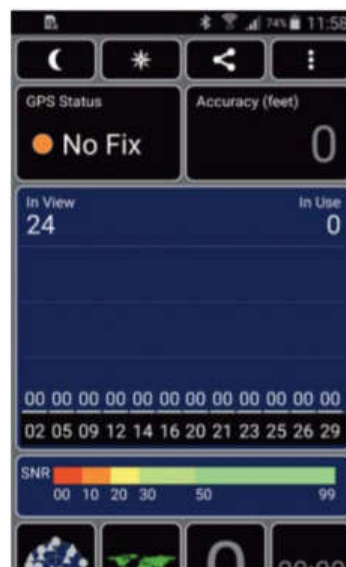
qa@littlegreenrobot.co.uk
Send your questions for our team of
experts to tackle

My GPS is just not working properly!

"In the past few weeks I have had many problems getting a GPS connection and keeping it stable. It used to work fine everyday and did so for a long time, but it has reached the point where it's almost not worth using." *Kevin Fyfield*

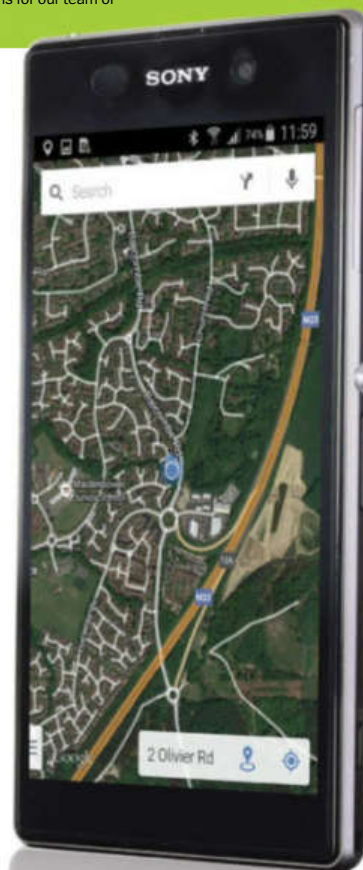
A Hi Kevin. There can be many problems that cause GPS unreliability and we would suggest concentrating on software first before you consider a possible hardware issue. Firstly, go to Settings>Location and make sure that High accuracy mode is enabled because this can help overcome deficiencies with lower powered GPS chips. The next thing to do is use an app to test the GPS chip itself and we would suggest looking at GPS Essentials or GPS Test, both of which are available in Google Play. You will be able to calibrate the compass

in GPS Essentials; surprisingly this can make quite a difference to overall GPS performance. We would also suggest looking at how the GPS performs in all of your apps that use it, to see if there is a difference. It's possible that the app you use everyday is not working as it should and checking as many as possible will give you a clue as to what's happening. Another option is to look at an app like GPS Status & Toolbox that lets you refresh the GPS data, just in case the settings have got stuck. Remember that if your Wi-Fi is working, then the GPS should be



You can analyse your GPS performance in detail using apps from the Play store

fine as well from a hardware perspective as they are often located together. But if none of the above works, you may have to try a factory reset as a last resort or a potential repair.



GPS can be incredibly useful on your Android for a variety of tasks and apps

hints & tips

Get more from your Android phone with our handy hints

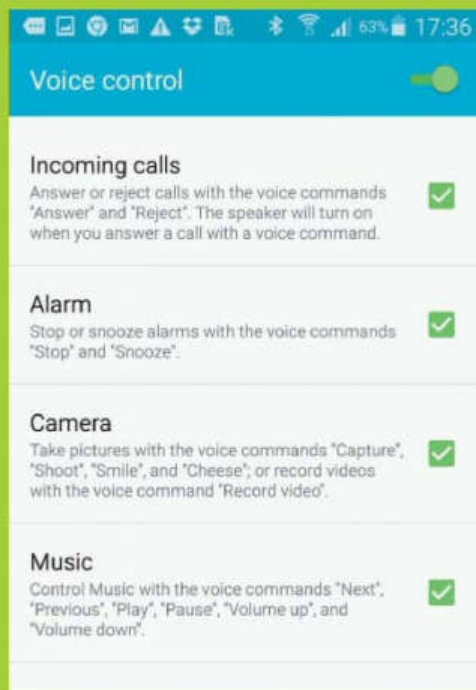
Battery health is very important

1 Chances are that the battery will be the first component to fail on your device so make efforts to check its health. Galaxy Charging Current Pro is a good example and gives you all of the information you need.



Benefit from Voice control

2 In the Clock app, tap the menu and then the Voice control option that pops up. You can then enable it to snooze alarms without even touching your device, which should make your mornings a little easier.



Remove the fluff

3 If you have problems getting your headphones or charger to work with your Android, don't ignore this very common problem. Check for fluff that may be stuck in the port, but please remove anything carefully.



Did Android Lollipop kill my S Pen?

I recently upgraded to Android Lollipop and everything seemed to work fine, but the S Pen is not doing what it used to on my Galaxy Note 3. Some functions, such as image clips, have stopped working completely. Have any ideas?

Joanne Galway

A **Hi Joanne.** We have done some testing on this and it does appear that there should be no problems with the S Pen functionality after updating to Lollipop. We have everything working, but at the same time we have read of reports where some functionality has been lost. If this is the case,

we would suggest going to Settings>Controls>S Pen and then making sure that the appropriate features have been enabled. If they have, you should turn off the Note and restart it – this is always recommended advice when doing an OS upgrade anyway. A working S Pen should be fine. Ideally, you should test it on another device to be sure, but if all else fails then try a full reset to get the S Pen working again. Samsung has tested the Lollipop upgrade fully for compatibility with the Note and stylus.

My screen is alive!

Do you know why my Android screen keeps turning on for no reason? It was fine before, but it has recently been enabling itself even though the display settings are set for much longer. Any tips or possible solutions would be gratefully appreciated.

Thomas Mitchell

A **Hi Thomas.** This is a strange problem and one that should not happen, but we have some ideas that may help you resolve it. The first thing to do is to turn off the Wi-Fi for an extended period and to check if the problem continues. We have a hunch that it will not and this is because the Wi-Fi may be trying to push data or to check that the connection is still valid. If it continues, try booting your phone into safe mode by holding down the power button to bring up the close dialogue and then hold your finger on the Power off option until you are asked if you want to restart in safe mode. When you do this, no third-party apps should run and so you will be able to check if one of them is potentially causing this problem. The final possibility is that you have a faulty power button, but this is much less likely so we would suggest a full reset if all else fails, which will probably work.

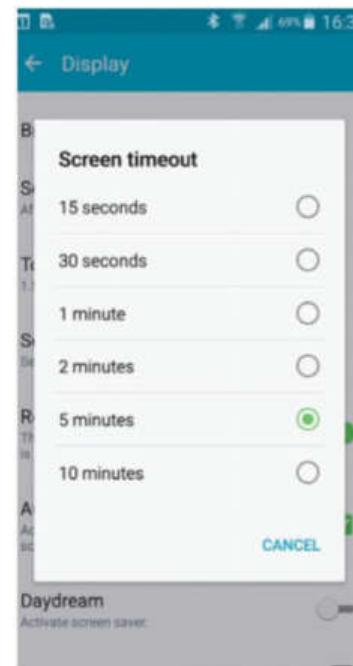
Is there a way to restrict my data usage?

A Hi. I need to restrict my data usage because my provider is quite expensive and I am finding that Android causes all sorts of problems for me. Even going back to the browser after using another app causes webpages to reload. Subsequently, I am constantly getting close to my monthly allowance. Any tips on how I can reduce my monthly data usage?

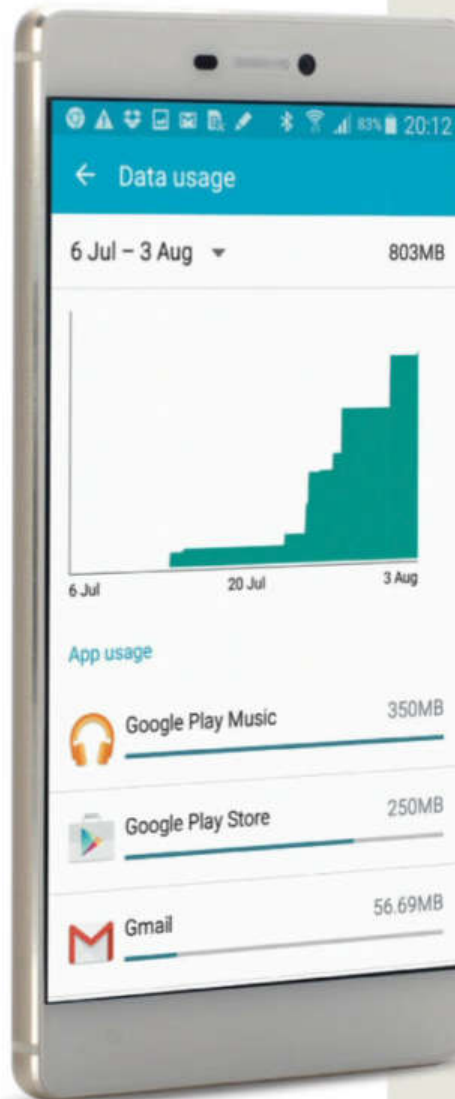
Carlton Skiller

Hi Carlton. We sympathise with your predicament, but we do not necessarily agree that Android is the cause of the problem here. The fact is, all modern smartphones use data in a variety of ways through apps, mapping and in almost any other activity you use, and to negate this would be to seriously diminish the experience. We can offer some tips on reducing usage, but would advise to use them with caution so you can retain the level of usability that you are already familiar with. Also, feel free to shop around because some network providers are much cheaper than others. If you can pay the same as you do now and receive a much bigger allowance, then you will be able to enjoy the best of both worlds. There is always a middle-ground between cost and usage when using a smartphone.

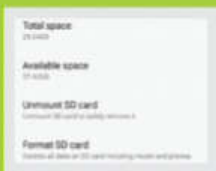
There are a number of ways in which you can lessen the data usage of your Android device



An Android screen should obey the settings you have enabled



The S Pen should work fine in Lollipop



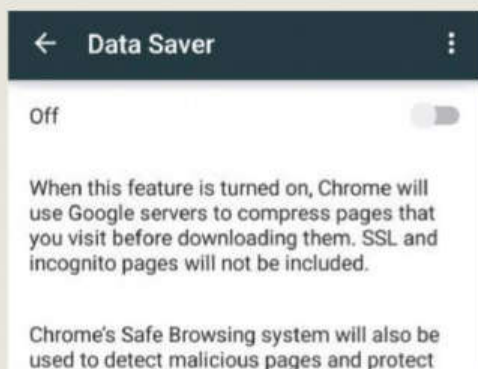
Did you know?

You can never be too careful with the data stored on an expansion card so make sure that you always unmount the card before you remove it. Go to Settings>General>Storage>Unmount SD card, before you remove the card as it can help to avoid corruption.



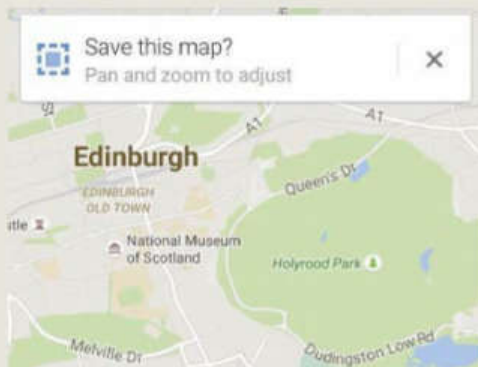
1 Use Opera to reduce data

Opera Mini web browser, available from Google Play, is designed to specifically reduce the amount of data you use and the feature works very well among a plethora of other useful components. You can check the amount of data saved at any time and also see historic trends.



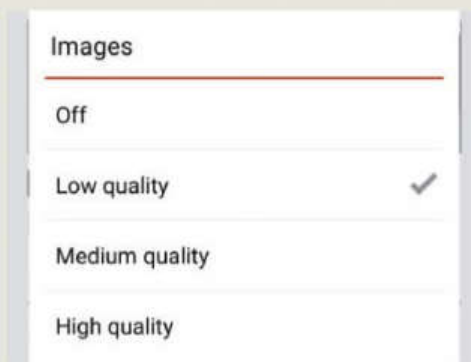
3 Save data in Chrome

The Google Chrome browser also includes a feature that is designed to reduce the amount of data used when browsing. Go to Settings in the app and look for the Data Saver option. Tap it to view an explanation of what it does and then enable it to see if it works for you.



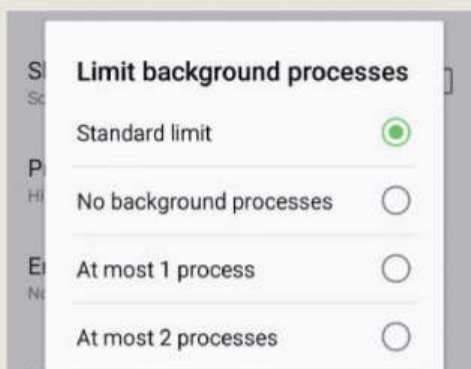
5 Expand your options

There are many settings within the Android operating system that help you reduce data usage. For example, you can type 'OK maps' in the search bar in Google Maps when an area is displayed to save it for offline use. You can also 'Auto-update apps over Wi-Fi only' in Google Play's settings.



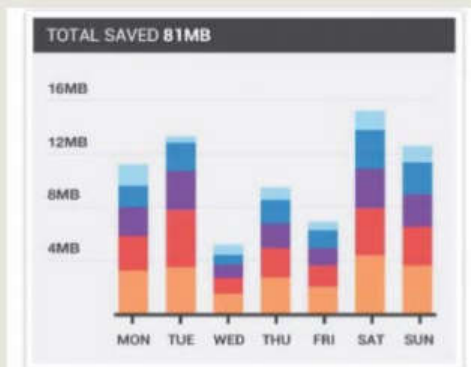
2 Images are big on data

In the Opera Mini settings, you can adjust the image quality that is displayed when browsing the web and it really makes sense to go for the low option. For most websites, the quality of the images when displayed on a mobile device will make little difference to the overall experience.



4 Background processes

If you enable developer options, you will see an option called Limit background processes. This lets you choose up to four processes to run at any time, and because most use your connection, you should save on data use. It can also speed up your device and improve battery life.



6 Limit everything

If you want to take your data savings to the extreme, take a look at Onavo Extend | Data Savings on Google Play. It is a wide-ranging app that interacts with your data connection, no matter what app or service you are using, to save on your overall data usage. It is very convenient to use.

Android magazine

Imagine Publishing Ltd
Richmond House, 33 Richmond Hill
Bournemouth, Dorset, BH2 6EZ
+44 (0) 1202 586200
Web: www.imagine-publishing.co.uk
www.greatdigitalmags.com
www.littlegreenrobot.co.uk

Magazine team

Deputy Editor Philip Morris
philip.morris@imagine-publishing.co.uk
01202 586221

Production Editor Adele Jordan
Staff Writer Jamie Frier
Senior Designer Adam Markiewicz
Photographer James Sheppard
Senior Art Editor Will Shum
Editor in Chief Dan Hutchinson
Publishing Director Aaron Asadi
Head of Design Ross Andrews

Contributors

Andy Betts, Christian Cawley, Oliver Hill, Phil King, Shaun McGill, Paul O'Brien, Jack Parsons, Harry Slater, Jessica Thornsby

Advertising

Digital or printed media packs are available on request.

Head of Sales Hang Deretz
01202 586442
hang.deretz@imagine-publishing.co.uk
Advertising Manager Alex Carnegie
01202 586430
alex.carnegie@imagine-publishing.co.uk

FileSilo.co.uk

Assets and resource files for this magazine can be found on this website.

Support filesilohelp@imagine-publishing.co.uk

International

Android Magazine is available for licensing. Contact the International department to discuss partnership opportunities.

Head of International Licensing Cathy Blackman
+44 (0) 1202 586401
licensing@imagine-publishing.co.uk

Subscriptions

For all subscriptions enquiries
0844 245 6963 (UK)
+44 (0) 1795 414 972 (Overseas)
Email: android@servicehelpline.co.uk
13 issue subscription (UK) – £51.90 (CC)
13 issue subscription (Europe) – £65
13 issue subscription (ROW) – £75

Circulation

Head of Circulation Darren Pearce
01202 586200

Production

Production Director Jane Hawkins
01202 586200

Finance

Finance Director Marco Peroni

Founder

Group Managing Director Damian Butt

Printing & Distribution

Printed by William Gibbons, 26 Planetary Road, Willenhall, West Midlands, WV13 3XT

Distributed in the UK, Eire & the Rest of the World by: Marketforce, 5 Churchill Place, Canary Wharf, London, E14 4UH ☎ 0203 787 9060, www.marketforce.co.uk

Distributed in Australia by: Network Services (a division of Bauer Media Group) Level 21 Civic Tower, 66-68 Goulburn Street, Sydney, New South Wales 2000, Australia ☎ +61 2 8667 5288

Disclaimer

The publisher cannot accept responsibility for any unsolicited material lost or damaged in the post. All text and layout is the copyright of Imagine Publishing Ltd. Nothing in this magazine may be reproduced in whole or part without the written permission of the publisher. All copyrights are recognised and used specifically for the purpose of criticism and review. Although the magazine has endeavoured to ensure all information is correct at time of print, prices and availability may change. This magazine is fully independent and not affiliated in any way with the companies mentioned herein.

If you submit material to Imagine Publishing via post, email, social network or any other means, you automatically grant Imagine Publishing an irrevocable, perpetual, royalty-free license to use the material across its entire portfolio, in print, online and digital, and to deliver the material to existing and future clients, including but not limited to international licensees for reproduction in international, licensed editions of Imagine products. Any material you submit is sent at your risk and, although every care is taken, neither Imagine Publishing nor its employees, agents or subcontractors shall be liable for the loss or damage.

Android is a trademark of Google Inc.

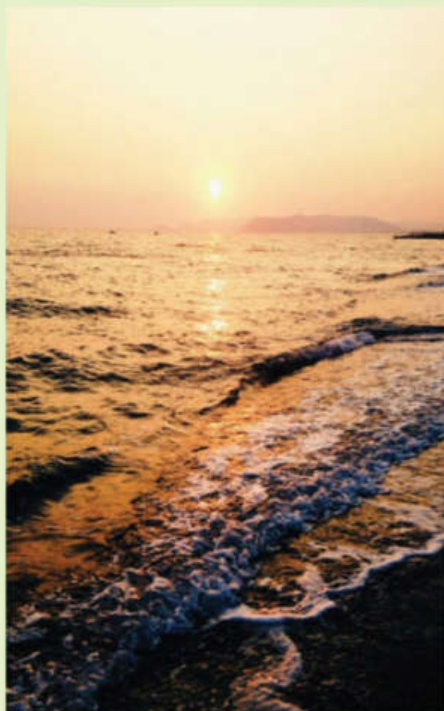
© Imagine Publishing Ltd 2015
ISSN 2047-1580

ip
IMAGINE
PUBLISHING

recycle
Where you have finished with this magazine please recycle it.

YOUR FREE RESOURCES

Log in to www.filesilo.co.uk/android and download the latest smartphone software, video tutorials and free wallpapers

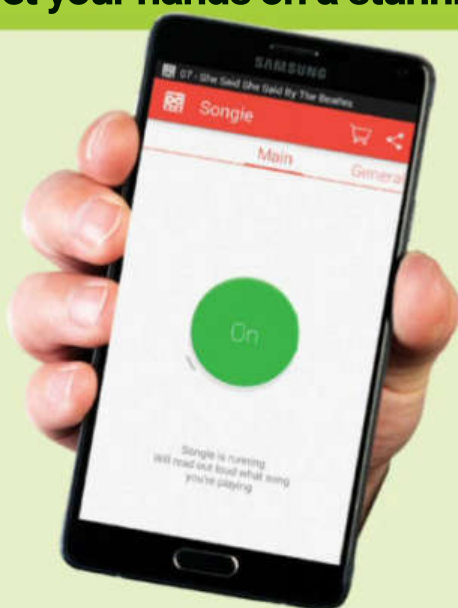


10 free wallpapers **Get your hands on a stunning collection of designs**



Unboxing videos
Hands-on with the latest devices

TOTAL NUMBER OF
FREE RESOURCES **15**



Expert video guides
Walking you through new features

YOUR BONUS RESOURCES



ON OUR BRAND-NEW
FILESILO THIS ISSUE
YOU WILL FIND AN
UNMISSABLE
COLLECTION OF
ANDROID RESOURCES

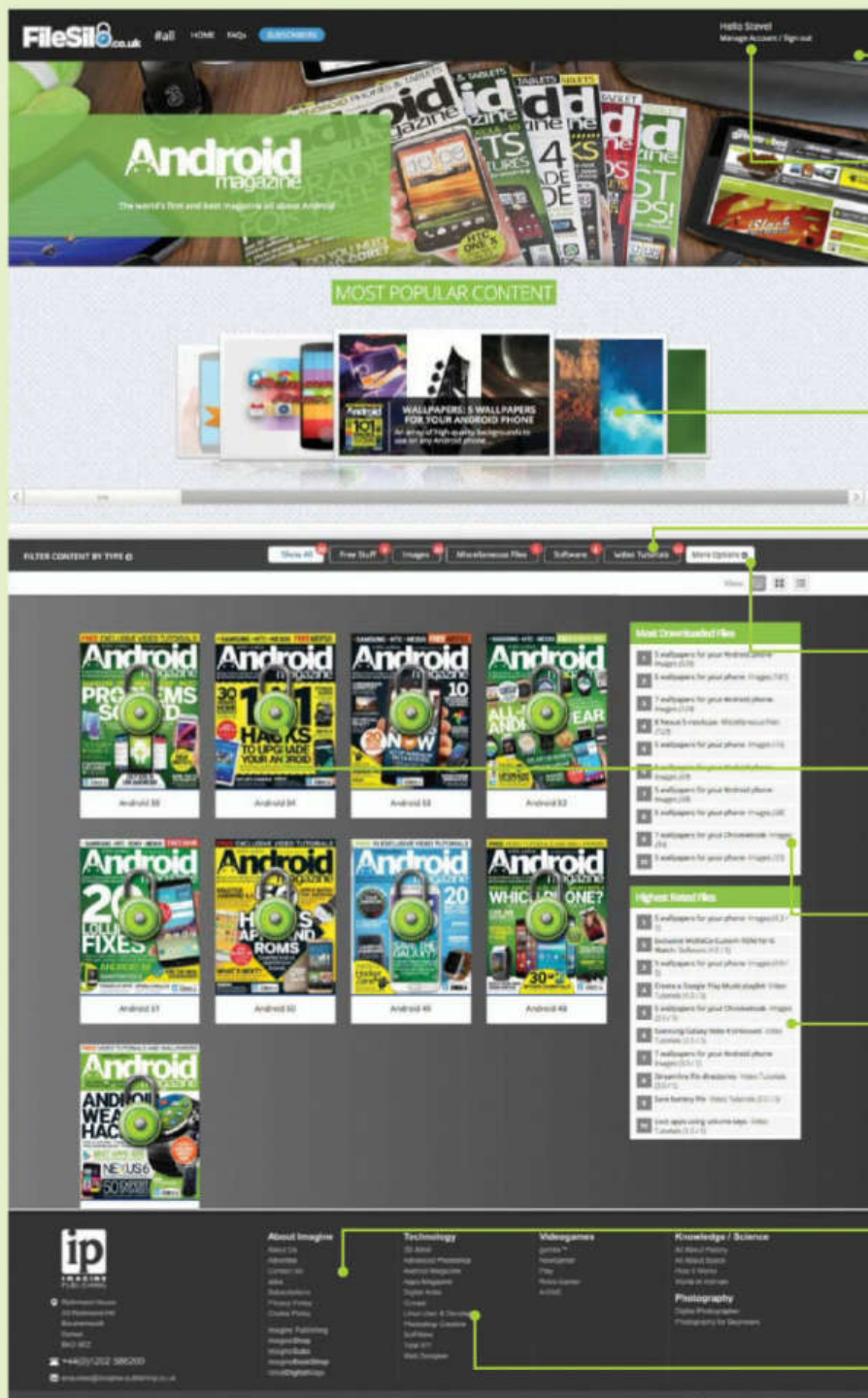
- » Exclusive hands-on videos of the latest hardware
- » Videos to guide you through some of this issue's best tutorials
- » Wallpapers for your phone
- » Stunning desktop wallpapers

FileSilo

www.filesilo.co.uk/android

» FILESIL0 – THE HOME OF PRO RESOURCES DISCOVER YOUR FREE ONLINE ASSETS

- A rapidly growing library
- Updated continually with cool resources
- Lets you keep your downloads organised
- Browse and access your content from anywhere
- No more torn disc pages to ruin your magazines
- No more broken discs
- Print subscribers get all the content
- Digital magazine owners get all the content too!
- Each issue's content is free with your magazine
- Secure online access to your free resources



Resources

How to use

Everything you need to know about accessing your new digital repository



To access FileSilo, please visit www.filesilo.co.uk/android

01 Follow the instructions on screen to create an account with our secure FileSilo system. Log in and unlock the issue by answering a simple



question about the magazine. You can access the content for free with your issue.

02 If you're a print subscriber, unlock all the content by entering your unique Web ID. Your Web ID is the eight-digit alphanumeric code that is printed above your address details on the mailing label of your subscription copies. It can also be found on any renewal letters.

03 You can access FileSilo on any computer, tablet or smartphone device using any popular browser (such as Chrome, Firefox or Safari). However, we recommend that you use a computer to download content, as you may not be able to download files to your phone or tablet.

04 If you have any problems with accessing content on FileSilo, or with the registration process, take a look at the FAQs online or email filesilohelp@imagine-publishing.co.uk.



GET IN TOUCH WITH ANDROID MAGAZINE

Head over to www.littlegreenrobot.co.uk for all the hottest news and reviews, quick tips and handy tutorials and much more. We're on Facebook and Twitter too – follow @lgrobot and like us at www.facebook.com/littlegreenrobot to find amazing competitions and giveaways for apps and hardware. We'd love to hear from you – don't be shy!



www.littlegreenrobot.co.uk

Issue 57 of Android Magazine is on sale **29 October 2015** from GreatDigitalMags.com



SmartMask

Standalone App & Photoshop PlugIn



Complex Selections Made Easy with AKVIS SmartMask!

AKVIS.COM

SAMSUNG



The award winning
Samsung NX1
with UHD 4K video.



- Redefine image quality with the 28MP BSI APS-C CMOS sensor
- Hybrid AF with 205 phase detection, 209 contrast detection and 153 cross-type sensor points
- Fast and precise continuous shooting up to 15fps at full resolution
- Capture fast-moving action with exquisite clarity at 1/8000 sec. shutter speed
- Breathtaking 4K UHD video recording in HEVC (H.265) format
- Lifelike Electronic Viewfinder (EVF) with an ultrafast response time of 0.005 seconds
- Highly durable dust and splash resistant magnesium alloy body

Available at **John Lewis**

FIND YOUR SIGNATURE

Samsung SMART CAMERA **NX1**